









Journal
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Obituary

SIR JOSEPH CHAMBERS

By Sir Alfred E. T. Mayhew, M.D. —

The death of Surgeon Vice Admiral Sir Joseph Chambers, which occurred at Harrogate on September 22, 1935, eight years after his retirement as Medical Director General, came as a severe blow to all his friends in the Service whether senior or junior officers and I find words inadequate to express the loss we all feel—the loss of a friend of one profession and of a friend.

Sir Joseph was born in Ireland in 1861 where he spent his youth, was educated at Trinity College Dublin and graduated in Arts and Medicine in 1887.

Two years later he entered the Royal Navy as Surgeon and in due course was promoted to Staff Surgeon. After various years service he became Fleet Surgeon. During those years he served on ships at home or abroad and held one short appointment as Staff Surgeon in the Royal Marine Infirmary, Plymouth.

In 1908 and again later in his career he acted as Health Officer for Home Ports. He lectured at these ports, and by direction of their Localships his 'Courses of Addresses on Some Important Health Questions' were printed and distributed to all Medical Officers by their instructions and guidance. Nevertheless the latter were directed to give periodic instructions to the men under their medical charge. Of the value of these instructional lectures there can be no doubt and it is to be hoped that Chambers' pioneer work the results of which are evident in the Health of the Ship, may bear witness.

Later in the same year he took over Medical charge of the Dover Hospital and gained three Localships commendations for his efficient administration of that establishment.

After one year's service as a sea-going ship during the Great War he was placed in charge of the surgical section of the Royal Naval Hospital, Chelsea, and remained there until after the end of the war. For his conspicuous ability and success in carrying out his exceptionally arduous duties he was awarded the Order of St. Michael and St. George.

In July, 1920, while in charge of the Royal Naval Hospital, South Greenwich, he was promoted to Surgeon Captain and then went to Harrogate in charge of the surgical section there. He held this post for a few months only so, in April 1922, he received further promotion to Surgeon Vice Admiral, and, in 1928, assumed charge of the Royal Naval Hospital, Plymouth. In October of the next year (1929) the Board of Admiralty

His young chemistry

Appointed as Surgeon (Honorary member of the Royal Society) in 1841, Surgeon Major-General Joseph Charles was a capable, intelligent and conscientious administrator and chemist, whose long effort towards F.M.S. and which resulted in establishing the Surgeon-Captain's List, a new specialist, increased output of medicines, salts, and other requirements furnished to the Medical Board and various supplies to the Royal Navy.

He was promoted C.O. in 1844 & C.M. in 1848, and was appointed Honorary Physician to the Hospital of a Surgeon M.D. Three years later, however, he received the Honorary Doctor M.D., and was elected a Fellow at the Royal College of Physicians of Ireland.

He was placed on the general list, after about three and a half years service as Medical Director (General) of the Navy, on July 1, 1851.

To this brief portrait of Joseph Charles's career in the Royal Navy, a few details of a more intimate character are added. Of his physique and career, he stated the avoidable detriment of being a Navy man-retired. His career represented his country and may be large on the touch of pride, he would express an confidence of having been one of the Irish team which scored Ireland's first victory against England. He was fond of sport and did much for it in the Navy. As years advanced he became a victim of golf and spent much of his leisure as a wide Devonshire moorland for its beauty, the result of an aim to be found there and the cheap company that frequented it. Westward He was rather suspicious of his profession as for the service he had an all-giving enthusiasm. When on foreign service he associated himself with the practice of medical hospitals and took every opportunity of adding to his professional knowledge.

With his juniors, he conferred friendly advice and proved them in three ways at various times with commendable regularity. He was generous in praise of the professional work of others and delighted to hear of and to credit anything which contributed to the credit of the Medical Service or of an individual, particularly if the praise came from a leading light in the medical world.

Consistently conservative, he was tolerant and broad-minded. He had a kindly, genial disposition, a big man with a big heart. His friends were as his happy memory.

Surgeon Vice Admiral Sir Duguid Reid writes —

My first meeting with the late Sir Joseph Charles was in September, 1908, when he consented to take over duties as Medical Director-General of the Navy from Sir Robert Reid. I was then serving as Deputy Medical Director-General. I do not remember ever having met him before, though his fine reputation was well known to me. These comparatively few years, however, owing to our intimate association on Departmental work, I got to know about him. It was characteristic of him on taking over duties as Medical Director-General to say to me, "Well! I am here to learn the job and you are here to teach me." He had never before worked at the

Sir Joseph Chamberlain

success, and had intended about that anniversary evening, the Wednesday 19th, with some interesting company, to look into the city, that of an opening campaign "to the streets, but not to the doors." "I will always do my best to look you up." I was to be told that Sir Joseph's statement was during my three years' work with him.

He never took a real liking to office work, the confinement to the close being often irksome to him. When the hospital system came round this was very evident. His still deeper influence for the big machine was a link to writers and he never missed his international or better match if he could help it, himself being an Irish Rugby international player. During his term of office as Medical Director General he had every a definite success and trouble: the Medical Branch of the Navy was at a low ebb and the first Women's Police Committee was formed. Chamberlain being the representative doctor for the Medical Department. He was not a great speaker at the meetings of this committee, yet his influence and doggedness were felt and many of the improvements for the better which were from the recommendations of this committee were due to him. In various spheres of work he found himself he devoted all his energy and thought to it. Those who worked with him realized a kindly but strong man of the hand of affairs. He was a man of few phrases and looked what he had come to be, the head of a big machine.

The death came to me as a great shock and I felt a real personal loss of an old friend and was conscious and now to whom I largely owed winter's success I had as my late services. There are many recollections moving and related medical officers who will agree with me in these sentiments.

Surgeon Captain R. Bradley writes:—

It has always been one of my regrets that I did not meet Sir Joseph Chamberlain earlier in my career as I had always admired him, though it was not until I joined on the same basis and really knew him and enjoyed his friendship that I was able to appreciate his real worth. It is true that we were contemporaries but it was not for that reason that we were friends; though I write my thoughts I know that they are also the thoughts of the many who did not had from Ireland for they have said so. It is true that being countrymen we had much in common for my friendship, as is that of so many others in the the general, honest, hard-working man who was always so ready to rub in with his colleagues whether power be him or not, and who, when duty was done, would draw all out his cards and listen to their opinions—my own these opinions—on all that was of interest to the service or the Medical Branch of the Service or at least, would state his views in his own inimitable way.

He was a real sportsman, a highly international, an ardent footballer and a good shot. His opinion of horses and particularly in those Rugby matches which he took such a delight in watching, was always worth listening to, and showed that though he could no longer take an active

out in the press, yet the famous, well-known name of Joseph Goulden and the being named may be felt; only, however, as, when again, here a good behavior? In the period just he continued his new behavior—perhaps because he would not give in. It was his opinion, subject to the approval of his audience at the moment, that he had been for a short period Middle Weight Boxing Champion of England!

In his student days Mr. Joseph was a member of a Committee for the purpose of selecting a Boxing Instructor for his University. The, then, Middle Weight Champion of England arrived in Dublin as an applicant for the post. On the evening prior to the appointment these two met, neither knowing the other. There was a difference of opinion and it was arranged that a meeting should take place. In the interval the opponent only learned what the other was. Chances turned up, but his opponent (for lack of preparing his chance for the post of Boxing Instructor) did not. Mr. Joseph maintained that he won this fight by default of his opponent and was then Middle Weight Champion of England. He would add that he was not offered opportunity to defend his title.

I do not think that Mr. Joseph had any real enemies, at least he never exhibited animosity against any. His disposition was so kindly that he would speak harshly of no one. There were men with whom he disagreed as of whom he disapproved, but these he would never mention. I have often heard him state that business and ability were the only roads to advancement, and he despised all others. His own advancement was obtained, solely in accordance with his principles, as all those who worked with him appreciate to the full.

It was my sad duty to bring the news of his death to his many friends at Hoxley and their expressions of sorrow was such as to convey more fully than words the extent of their sense of loss, and that no equal loss is felt by his many friends as the Sir was has been brought home to me from so many different sources that I am more proud than ever of the privilege of his friendship.

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Editorial.

With this issue we start our XXIIrd Volume. As we go to press we learn with the deepest regret of the death of Admiral of The Fleet, Lord Telford, a regret in which all medical officers share, especially those who had the honour of serving under him personally, or at the Fleet under his Command. It is not too much to say that this expression of admiration, affection and appreciation of a great man which the world has so elegantly voiced is shared in no less degree by the Medical Branch of the Royal Navy.

Unfortunately many of our contributors are away on their furloughs now, and have been for some time. We are, therefore, glad that we may tell about of another big publication. We are guided by the numerous articles which we have received from new contributors and acknowledge our indebtedness to certain contemporaries who have allowed us to reprint from their publications. *The Journal of Industrial Hygiene*, *The Royal Society of Medicine*, *The Journal of Medical Hygiene*, *The Journal of Tropical Medicine and Hygiene*, *Gay's Hospital Gazette* and so they come by *The British Medical Journal* and *St. Mary's Hospital Gazette*. We would especially thank those medical officers of the Royal Naval Volunteer Reserve who have written for us, both registered in the Journal and for their assistance. We hope that we shall receive articles from an increasing number of these. Certain articles which may have given us the benefit of their knowledge and experience. Dr. C. S. Symonds of Guy's Hospital, Dr. W. M. Williams, of the Port of London Medical Service, and Mr. Hugh Curran of London Hospital—we are very grateful and hope they will continue their most valuable assistance in spite of the fact that we know they are busy men. We would also thank those who have written to us about the Journal. There has been little adverse criticism and that always kindly and constructive.

There have been a few statements from our subscribers but there are more than counterbalanced by new subscribers. The financial state of the

However, we do have to be aware of the fact that the change in the number of employees is not the only factor that affects the change in the number of employees.

It was just announced that we in South Hill Medical Center, congratulate Spanish Veterans Hospital, Valencia, Spain on their improved Conditions of Service, the 1971-72 which are published in this issue under the heading: Veterans, Spain.

The Annual Dinner of retired Members of Officers living in the district, held at Haddon on October 24th. If our guests enjoyed their evening, to match its first hour, it was successful!

Under the heading of "Notable on again" about some details in relation to King Edward VII Coronation House for Officers at Colchester with two statues of "Supreme Leadership" the press, must not know of the establishment and we would suggest that they bring it to the notice of their readers.

References

18.77% AND 16.51% OF THE FAMILY

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By accepting this volume, hand circulation to a consistent source paper to the *Journal of the Royal Microscopical Society* is accorded to me that reports and abstracts of the hand might be an appropriate subject especially as several specimens are as frequent to the "error" as in oral life and in other cases the degree of difficulty reaching these conditions is often very great. Several copies of our content, as regard to treatment is advisable since only by appropriate treatment several suitable specimens have not been able to be reduced to a minimum.

The subject has been elaborated in Kassel [1], Finkel [2] and others whose treatments should be consulted by those who may be interested in details which are not presented in this brief review.

Considering first, *algorithms* that may vary as external loads would experience in multiple features and complete destruction of the herd, we may discuss those at the extremes of this group, demanding as they do, at one extreme, high or no treatment or at the other, primary suspicion and record the subject under the following headings:

Wounds—There may be classified as punctured, incised, lacerated or contused. The first two require a decision as to whether to close and

²² Pineda was a planned torturer, also cited in the Inter-Am.H.R. judgment. *Velásquez Rodríguez* case, 1988, 10 I.H.R.L. 1.

operation is rapid—sometimes, indeed, almost instantaneous. The hand is held in the correct position, the incision is made in the skin, the possibility of future motion thus being changed at once in regard to carrying out local surgical work, while wound adhesion is only fixed in the immediate future.

Incision large.—Trenkle's large incisions may result from wounds which rupture the palmar arches. While in most cases local pressure is effective in controlling bleeding from palmar wounds it may be preferable to ligate the bleeding artery rather than make an extensive palmar incision with the object of securing the bleeding points locally.

Division of tendons and nerves.—Careful inspection should be made to ascertain whether nerve trunks or tendons have been divided, and in any operation, in the great majority of cases in which such division has occurred, primary repairs should be carried out. This will in many instances be effective, but in others secondary operations at a later date will be required.

When an extensive wound has resulted in division of several flexor or extensor tendons it may be a little troublesome to identify the divided ends of particular tendons, but if local anesthesia is being used this may easily be done by asking the patient to perform a certain finger movement, e. g. to bend the ring finger—the bending will of course cause but contraction of the divided flexors will result in withdrawal of the proximal ends of these tendons of flexor sublimis and flexor profundus which before incision passed to the ring finger. The proximal ends of the tendons may thus be identified and sutured with their distal portions.

In the treatment of all injuries of the hand preservation of function must be constantly kept in mind. Adhesions between tendons and their sheaths may be inevitable except from prolonged immobilization and a variety of judgment, dependent on clinical experience, is required as to when movements should be begun, but generally speaking this should be early in the course of treatment and of an active rather than passive character, the range being gradually increased less limited by the amount of discomfort to the patient so as to stop short of causing pain.

Infection.—The more common sources of infection are wounds, punctured wounds, and less often local skin collections such as boils and carbuncles. Wounds, which arise from damage often remote to the end organ and the introduction of organisms at a time when the patient's resistance to them is in a relatively lowered phase are described as subcutaneous, subcutaneous, intratendinous and supratendinous, according to the site of the particular infection. One variety may extend to tendon and while in one patient a subcutaneous infection may be a very trivial lesion rapidly recovered from once the vehicle is removed and the local collection of pus has been evacuated, in another a subcutaneous infection may extend until both the tendon sheath and the bone are infected.

Amputation of Finger and Hand Injuries.—In connection with the treatment of suppurative processes it is important to consider the various

of the spaces in pointed spaces in which suppuration does not diffuse and gives direct communication to the wrist and elbow.

Joint Infection.—Where the joint is situated, it is the last thing that



FIG. 1. Diagram illustrating the lymphatic system of the hand and forearm, showing the distribution of lymphatic vessels and the spaces in which suppuration does not diffuse and gives direct communication to the wrist and elbow.

tendon passing to each of the three middle digits to emerge proximal to the level of the distal crease line which crosses the palm those for the little finger and the flexor digitorum profundus tendon merely extend towards the

anterior cruciate ligament of the knee and the transverse ligament of the scapula are all examples of the same type of arrangement and are located terminally on the level of the distal end of the corresponding bones. This fact, except in a small percentage of subjects, is a general diagnostic lesion and does not communicate with the proximal sheath of the long fibres of the thumb (radial nerve). As a rule the radial and ulnar nerves extend into the forearm for a distance of from one to two inches proximal to the anterior cruciate ligament.

Beneath the tendon sheath are the two pharyngeal spaces, the thoracic and mediastinal, separated by a septum which lies along the line of the mesocephal



Fig. 4.—The position of the radial and ulnar nerves should be maintained by a shell opening, aided by the scapula or clavicle up to each up-spiral or by means of planes of force.

of the middle finger, while in the forearm between the proximal quadratus and the flexor muscles there lies Parnes's retroflexor space.

These anatomical arrangements must be kept very good when attempting to correct a where pain is collected and if at the same time it is remembered that the maximum point of tenderness is a guide to the maximum concern tendon, the compartment or compartments involved can be recognized.

In acute inflammation (see above) where we are not satisfied with the patient's opinion, the treatment, in the absence of the inflammation and the swelling on the dorsum of the hand is almost always sufficient to cause him to quit work with painful acute infection and only very rarely does suppuration occur over the dorsum or do serious sequelae to be made here.

The accompanying diagram (fig. 1) indicates the site at which incisions are most conveniently placed for dealing with infection on the ungual area which we have had under consideration. By reaching the subcutaneous membrane it will be possible to avoid the cutaneous nerve. Incisions in the patient of extending the damage done by infection by spreading it into uninfected spaces by displaced incisions. Early and free drainage, particularly of infected patient spaces is to be recommended with at the same time application of heat in the form of fomentations or an anti septic bath, while if the parts are swollen and in a stage chronic phase, dehydration with magnesium sulphate paste is advisable.

Further, the parts should be placed at rest in the position of physiologic relaxation by suitable splinting (fig. 2) and it is found in practice that where cases of normal infection can be identified to and treated in the early words rather than as suppurative, results are very much better. Anti septic treatment such as 2 and 3 volumes, good local light, heat and attention to the patient's general health are obvious necessities in all cases.

In a brief paper such as this it is possible to deal with the important subject in only a superficial way, but it is hoped that recognition of the principles which have been stated herein may be of help to us when we deal with these cases, and that these applications may perhaps reflect in some extent the degree of disability which we so often unfortunately see as the result of infection or infection of the hand.

REFERENCES

- [1] KERRICK, A. B. — *Hand and the Hand*. Baillière London 1924
- [2] KERRICK, A. B. — *Infection of the Hand*. Lewis London 1926

AN OUTBREAK OF SCHESTONOMIANS PAPPOCUM

by LEONARD LINTHROPE CHANDLER, D. B. 1928, R. B.

IN 1927, in about four or five hundred instances of Scheistonians pappocum have appeared in this Journal, the source offered for asking 50 that we also in that the particular outbreak, which affected about 50 per cent of an entire ship's company, is probably unique in the history of the Navy in 1928.

Through records among the Chinese, some among the foreign population a number of soldiers and then in the words of Messon-Duval "mostly among, several officers and apartments situated in camp shooting in the area held." In passing, it is as well to mention that the first word about

suspect British sailors avoided themselves of this swimming, and they bathed on an average on four separate occasions each. Presumably the possibility of schistosome infection did not enter the commanding officer's mind as he, in all likelihood associated the disease only with paddy fields and swamps and with an open landscape with relatively deep water and tall reeds from the south shore. As it happened there must have been an extremely heavy concentration of cercariae in that area (drawn largely from the creek) some of the total of eighteen bathers, no less than two (or independent) developed schistosomiasis. (This does not include two Chinese sailors who also bathed and were likewise infected). Subsequent investigations showed that the intermediate host was to be found in great abundance in the swampy and also on the opposite bank. There is ample evidence that these bathing parties were the origin of the infection, as the matter was investigated with scrupulous care and thoroughness by a Court of Inquiry in which every other possible source was examined and excluded. The first case reported took on August 11, (a incubation period of approximately two weeks) and the last eleven days later.

Before discussing the detailed details of the further tests it was not possible to obtain notes on the two Chinese, as after diagnosis and admission to hospital they "escaped" and went home at the very last opportunity; it might be as well to remark briefly the life history of the schistosome, with particular reference to the stage when it has gained entry to the human host. During suitable conditions of water and warmth the eggs hatch out into the ciliated larval form—the miracidium—which swims about in search of the intermediate host, the snail. Unless this is found within twenty-four hours the miracidium dies. Having gained entrance, via the anterior to the digestive gland of the snail the miracidium develops into a mouth-walled bag,—the sporocyst—which in turn forms daughter sporozoites in its internal wall. From these the next stage develops—the cercariae—possessing a body with two suckers and a tail bud. This is the form which infects the human or animal host, gaining entrance either through the skin (not via a sweat gland or hair follicle) or mucous membrane of the mouth or nose. Having penetrated the skin the cercariae, casting off their tail buds in the process, enter the general circulation through the veins or lymphatics and finally collect in the lungs. They are then assumed to enter the liver by traversing the mesenteric and hepatic veins, and having reached the portal circulation develop into the mature trematode. Later experiments by Miyakawa suggest that the route taken by the young worms is as follows: Large pulmonary veins, lower splanchnic capillaries and the low portal and mesenteric veins. The mature cercariae were shown a length of about 18 mm. while the female is about 1 cm. shorter and several hundreds may be found in a heavily infected case. The adult worms collect principally the veins of the lungs and intestines, but are also found in the superior mesenteric and splenic veins. The paired worms, the female having lodged herself in the gyramphalae canal

Of the male *trichotomus*, one (black) was taken from a young female green when the female, apparently freshly from the nest, and winged, still showed evident progress and further along the trunk again, the worms could not be traced as further. Here the worms are deposited and are retained in situ by the larval hook on the ventral and by the underlying down of the trunk after the worm has "settled" himself out of it. The worms do not remain here permanently. Generally, speaking, worms are extruded at maturity through the ventral process and pass on with the larva and grow suitable conditions hatch out to commence the life again of the parasite. Apart from the walls of the large intestine, members of one are found in the liver and pancreas (although seldom in the spleen) and may be transported by the bloodstream to other parts of the body. They have been found in the pericardial and ventral cavity of antiquae, and some of Japanese origin attributed to schistosome lesions, have been recorded "acute symptoms" arising, on any number of cases, may therefore occasionally be recorded either in the pancreatic lobes of a particular worm or worms, or to the ultimate destruction of worms which had reached the maximum development.

As no nasal mucus was present consistently during the period the following notes were made: involvement in Blackleg, the white exudate, lodged with greatest luxuriation, to the 11 Spinalia (anatomical to the Subventral tangens and Agent at Blackleg); who had change of the cause, for the use of chemical notes, on which the disappearance of the cause was almost complete. (The cause was as follows: —

Case 1.—This rating reported such on August 11 complaining of general malaise, weakness and some abdominal pain in the epigastric region with a temperature of 101.2° which rose to 104.0°. He rapidly developed a typical chills-rigors syndrome which he observed and was at first more marked and late in the onset. This did not advance more than a week from onset and was followed by the typical high fever type of illness but not a true malarial fever as appeared on the rapid death. He was treated with an arsenic solution for the first three days, and subsequently received the full of malarial treatment but to no avail. He made a point to leave country. The schizonts in blood on smears of 10 per cent were nearly as numerous like had observed in 8 per cent at which time his blood count still remained in order. No parasites had been obtained on any long exposures of the smearing thin films in these smears. The malarial parasites exhibiting a form poorly observed at the extreme left hand. The plasmodium contained a few malarial cells in margin as well as due to an excess in some stage of development or in too immature in life stage. This case, however, was not a typical malarial fever.

[illegible]

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the common type, a very common one, in fact, which had a more or less mild, short-acting febrile attack. The patient had almost total resolution of the two eyes almost immediately and he, too, discharged me happily on November 11. It is interesting to know that the patient had no optic atrophy, but unfortunately no ophthalmoscopic record. The fundi were normal.

There were, again, other manifestations, possibly the lesion of a branch of the retina, probably of the right, which involved artery, which, it is tentatively suggested, was possibly plugged up a retinobulbar artery, which had caused the general convulsion. But at an identical convulsion should not be based up a similar view for that the extent of the inevitable phenomena and therefore of the softening of the brain substance because less than one is led to believe would result in the patient on the hypothetical basis under the influence of numerous light shined (eye) with the same effect being the improvement though not a complete relief of the paralytic.

Case 4.—This patient reported on August 17 with general weakness, a slight weight loss, vague pain in the right arm. He had a temperature of 36.7° C. severe weakness and diarrhea and an ophthalmia of 11 per cent. The temperature was relatively normal and movements were normal and he was given one or two doses of medicine. A complete course of treatment was also given, but the patient improved and was discharged from hospital on August 20. In March, however, his condition was found to be full of both retinobulbar and whole his ophthalmia eyes was 10 per cent.

Case 5.—The initial symptoms in this case appeared on August 18 and consisted of weakness and vomiting, general weakness, with pain and tenderness over a slightly enlarged liver. There was only a mild degree of jaundice, and after questioning produced a definite history of a transient convulsion. There was an ophthalmia to the extent of 40 per cent., but again there is a substantial diminution of the disease. The symptoms cleared up rapidly under the usual course of treatment. Four months later, however, the attack was found to be full of both retinobulbar eyes. During the initial course of treatment treatment was given of large doses of the developed a partial recovery of the whole system, which represented a temporary suspension of treatment. This was the only case in this series in which the disease occurred.

Case 6.—On August 19 the patient complained of vague abdominal pain, diarrhea, and weakness. At the onset the diarrhea was treated with one or two doses of medicine, but within three days a mild general attack on the original symptoms had become manifest and a persistent enough developed. His ophthalmia eyes was 10 per cent., but his symptoms cleared up rapidly under routine antiseptic treatment. In March he had an ophthalmia of 5 per cent. and his condition was normal, and in May the same findings were recorded.

Case 7.—This patient had complained of being run down since August 13 and a week later diarrhea and vomiting with a mild fever set in. He stated that he had noticed a "small red" which had disappeared overnight. He had complained of general pain, a slight cough and of both eyes in conjunctivitis was visible. There was an ophthalmia eyes of 10 per cent. and conjunctivitis over the whole, but no other positive signs. The condition improved rapidly under routine antiseptic treatment and in March his ophthalmia was down to 10 per cent. and his condition was normal.

Case 8.—At first this case appeared to be mild and straightforward and he reported with general weakness, vomiting and diarrhea on August 20. There was a slight fever, but no cough or pain, and an ophthalmia of 10 per cent. The patient was in hospital for a few days but was not, and he was discharged on 11.25. The patient had the complaint of his eyes in March. There has been two weeks since the beginning of the disease and after he had received his seventh

expansion of the drug to full action occurred at the expected, rate of its activity, appeared together with some initial improvement. The initial dose was still sufficient to bring tachycardia out, though these subsequently disappeared. The apnoeic, tracheal, was lower based and less than a minute or so after died again. Though her parents said that more carefully regulated and digitalis medication given has produced resolution and tolerance to atropine became even, and a definite systolic murmur appeared accompanying resolution. The problem in this case was whether the responsibility was due to the disease or the drug. It is well known that atropine occasionally produces this reaction, but in this case, only 75 per cent. of the cases was given, and in the other patients—except perhaps Case 8 where rather sparsely appeared—did the resolution supervene.

Case 11.—On August 22 the patient complained of dizziness, headache, nausea and slight cough. There was a level of 100 P.P. tachycardia but present in her time, though no noticeable paroxysms. There was also a slightly enlarged and tender liver and an amplitude heart of 55 per cent. He had also noticed a faint chest wheeze. The next symptoms showed up fairly rapidly under Fumadex, but a severe mental depression and loss of appetite set in. He also complained of severe pain in the

side of the neck, and other side symptoms of the drug, and as the end of four weeks he had lost over 20 lb. in weight. After his discharge from hospital he slowly gained up his weight and his mental mental attitude and in March his weight again was 41 per cent. and his chest normal. Two months later his amplitude heart decreased still further, to 35 per cent., and his state was not better.

Case 12.—This case reported on August 23 with pain and tenderness over the liver, slight dizziness (but no vomiting) and an increased rate. There was a general cough with a spontaneous solution over four hours and a slight fever. His amplitude heart was 45 per cent. He was treated with sodium atropine tablets, and made a good recovery. In February his amplitude heart was 45 per cent. but on three or four months he failed to his state.

In studying the main signs and symptoms, the following points are of interest:—

(1) Systemic headache and general weakness were present in all cases. These symptoms are undoubtedly due to the presence of the tachycardia term in the circulation and were shortly after the specific treatment was started, and the activity of the paroxysms reduced, they became altered. Depression too, was a common feature, though perhaps largely due to the treatment, and was most marked in the case involving Fumadex, and in Case 11 the depression amounted almost to pathological melancholia. The fever may persist for over a week even under suitable treatment. It shows a considerable evening rise with a remission in the morning, and usually a subsequent pyrexial period of two to four hours.

(2) Abdominal pain. This was present in all cases and is associated with the entry of the treatment, and the subsequent development of the chest paroxysms, in the liver and partial resolution. Occasionally the pain was epigastric, but far more commonly was (as would be expected) in the hepatic area. The liver was noticeably enlarged in some cases and tender in all. Though apparently it was a characteristic feature of the advanced stages of the disease the spleen was not palpable in any of the cases of this series while they were under observation.

(3) Diarrhoea. This was a prominent symptom in three cases, but varied

(a) *Reddish or violaceous*. This occurred in all the cases, but was more marked in the case of the large intestine, by the red, reddish, or even plum-colored streaks of blood and sometimes small amounts of mucus. Local eruptions, however, were present in one case.

(b) *Swelling*. This occurred in two cases, and is doubtless due to edema though it may have been aggravated by the voluntary constriction. In a few cases during the early stages of treatment, it immediately followed, or synchronously with, the exposure of the tortoise to the light. To avoid this considerable dilation of the dog, and the use of a laxative was recommended.

(c) *Cough*. This was most marked in the early stages, and was attributed to the symptoms to the collection of the excreta in the lungs. In the later stages, when the symptoms became somewhat persistent, it is almost entirely secondary to the hepatitis set up by the parasites in the liver, and the presence of congestions at the base of the lungs was a fairly constant feature. It was a troublesome symptom in five cases of the series. In none of the cases of this series the cough appeared only a day or two before cure was found in the stage. The theory that the symptoms are due to a transient edema of the lungs, comparable to the edema which might apply to these conditions.

(d) *Urticaria*. This was noticed in three cases, but as this symptom is so very transient it may have occurred in more without being observed. This is presumably an allergic response to the helminthic toxin.

(e) *Leucocytosis with a shift to the left, toxic eosinophilia*. In this series the eosinophils varied from 15 to 50 per cent, and it is perhaps as well to state incidentally on this point that there is such a regular feature of the disease, variable though it be. It should be borne in mind that the helminths do not directly produce this eosinophilia—in other words, the presence of worms does not necessarily mean there will be an eosinophilia—but the phenomenon is merely an indication of toxic response to the helminthic toxin. Chodoff (1926), in speaking of *Y. leishmanii* stresses the fact that the proportion of eosinophils is absolutely no criterion as to the degree of the helminthic infection in some cases, heavily infected (as evidenced by stool examinations) show a relatively low eosinophilic count and vice versa. He also draws attention to the fact that in many cases there is an increased eosinophilia during voluntary constriction which indicates that the toxins are responding to the toxic effect of the drugs. When present it is usually of good prognostic significance, indicating a healthy reaction to the helminthic infection. It is interesting to recall that in one case of helminthiasis experimentally induced in the ferret, in which the patient suffered about seven relapses each relapse was relieved in by a feeding of severe depression and general malaise. The next morning the convalesced with a high, or rather increased, eosinophilia—in other words, the body was reacting to a prohibited helminthic activity as the parasites recovered from the effects of the last severe of voluntary—in this

under the French name, *Aliment Bromé* B and C. "How long, you will say, does your patient remain in the first stage?" The only answer we can give is the following:— "As usual." The same time, we have that there is a gradual transition in the convulsive stage and we are inclined to think that when this reduction period is in an extension that the stimulus for the manifestation of tonic convulsion has disappeared. It must be remembered, however, that convulsion is not a complete and reliable indication as to the presence of tuberculous body, as the intermittent subsidence of other infectious agents is responsible for intermittent paroxysms of convulsions. In the case in this case (Case 1) a convulsion nearly six months after her treatment had been completed showed an increase of 4 per cent (16 to 18 percent) over the one made soon after her infection. Her state, however, was still positive. In the remaining cases, where a test had not been established, this rotation did not occur after approximately the same period.

— *Hydro Bromide*—The drug just described for the treatment of tuberculous is necessary, and up to the present its most satisfactory therapeutic value has been found to be the most combined with either sodium or potassium in the form of a double iodide. Certain cases we expected to have recovered under treatment with quinine or arsenic in large doses, but these cases have been few.

— In these cases we have been treated with numerous sodium arsenate tablets. The classic drug is the potassium arsenate tablets more commonly known as "Lithium tablets," but it is more expensive though reputed to be less unpleasant to the patient, but we found as far as the patients concerned in very little if at all superior to the sodium salt. Commencing with a dose of 1 gr. this was increased to 2 1/2 and then 3 gr., and the dose was given on alternate days till the usual amount administered was 10 to 15 gr. In two or three cases this drug caused nausea and a occasionally vomiting during or immediately after an injection into the vein, and some patients complained bitterly of the severe pain caused by the absorbable—on occasion—leakage of the solution into the subcutaneous tissue immediately after the needle was extracted. The optimum duration of the drug for tuberculous purposes is 3 gr. dissolved in 50 c.c. of distilled water, and it should be given very slowly.

The remaining six cases were each given a full course of Potassium, a proprietary drug manufactured by Sagar, which of late has found considerable use, besides in the eye of some writers and which contains arsenic combined with potassium dihydrogenate of sodium. A course consists of one subcutaneous injection, and the drug is continuously retained in solution each entire bottle has a suspension containing the requisite and regulated dosage. This latter is much the simpler and more convenient form of administration, necessary but in most cases the clinical symptoms proved to be rather painful and more marked mental depression and loss of appetite appeared to follow the reduction of the drug than in the case

of the uterus. I should like to review all published literature and report that though *Phenol* causes the usual abortifacient process, it could not be said to act over a complete case. With regard to this drug it is noteworthy that of the six cases treated with this drug, only one appears to have been cured completely (Case II, who undoubtedly had the highest concentration of 50 per cent). Of the remainder one left hospital for vomiting from the distress with stools still present, a second developed pyrexia after which the remaining three produced faeces out at their stools within six months of completing the course. In the case of the latter however, the indications are that it has produced a 500 per cent rise and judging by this criterion is obviously the drug of choice. In short one is led to the conclusion that in a large proportion of cases *Phenol* merely causes a temporary suspension of helminth activity without destroying the worms or their own progeny.

Now follows a point of the greatest importance and extremely difficult to determine that is whether the patient is cured or not. The authors seem to, indirectly, estimate long time—in the case of *S. haematobium* Christopherson has estimated that in some patients the trematode has survived for many years—and so put the process under of autonomy in not entirely agreed upon. Farley believes that the drug has a relative action on the female reproductive system causing first sterility and infertile eggs to be laid, later cessation of egg-laying and, eventually, death of the worm. Christopherson however, insists that the shell of the worm is permeable to the drug, and that this acts on, and eventually kills, the worms within the egg also causing the worm to shiver up as well as destroying the worm themselves. In addition he adds that "the effect of the chemotherapy is to stop the automatic movement of deposited ova, preventing larvae appearing in the stool." (These authorities are inclined to coincide with their findings regarding *S. haematobium*, but these opinions can be logically applied to *S. japonicum*). This is an important divergence of opinion. If we believe in Farley's hypothesis, we would be quite puzzled in expecting fertile eggs to be passed at the first time after the patient worms had been destroyed by the action of the chemotherapy, since many ova would have been deposited on the uterus and vagina and elsewhere before treatment had been started and this because we do not believe that their automatic movement is restricted by the autonomy. Those who accept the theory that had it were to be held by a number of experienced zoologists in China are prepared to find fertile eggs in the stool the same weeks after an adequate treatment of the drug, and only recommence treatment when they have conventionally appeared the two or three months. If, on the other hand, we accept Christopherson's belief, fertile eggs in the stool at any time indicate that *schistosomiasis* autonomy has been given, then we are therefore forced to push the drug still further. Largely from the standpoint of 'Safety First'—and I repeat on the later stages in an on-going disease—the writer is inclined to accept, and not on the ground theory, but one must stand in the position of 'betting' when speaking

It has been by the microscope, as by a histological process that stained eggs have been produced in small quantities, but, as yet, not in the same manner as the establishment of the parasite.

The only weak point of question one is the use of an egg against a number of defences in causing an infection as to whether a stain is used or not. There is tremendous variation between the longevity of different forms of the same schistosome and their resistance to anatomy. Some die after a few days whilst others, as previously stated, survive for as long as twenty years. Some are destroyed by small doses of anatomy, while the others live for others seem to be as much of the drug as even more—as the host himself can tolerate. Again, there is the fact that anatomy may mean the withdrawal of the parasite as he temporarily suspended over a period of several months and their recovery would be indicated by the appearance of fertile eggs in the stools. Thus, indeed, has perhaps the greatest difficulty, as unless stools are regularly examined the patient might drift into the final stages of hepatic and splenic pathology through time. Doctors consider that this state can only be marked as a result of repeated infestation without calculating any subjective or objective symptoms. One is therefore reduced to having one's diagnosis, partially on repeated guards, death, as to whether the patient has had adequate anatomy treatment for let us assume at present 10 to 20 gr. of the material usually sufficient to effect a permanent cure, and secondly, whether repeated stool examinations over a period of two years prove negative for fertile schistosomes etc. If these two desiderata are complied with it is reasonably safe to pronounce a cure.

This leads to a brief consideration of the methods of administration of drugs for the cure of *S. japonicum* and the inquiry of the following remarks are called from an authoritative paper on the Chinese *Weford Journal* by Dr. Mary Anderson of the Foster Institute, Shanghai.

There are three methods commonly employed in Szechwan and these are—

(1) Direct smear. The faeces are examined in saline on a slide and the area examined for under the low power of the microscope.

(2) Schistosomiasis. Briefly in this method, a small ball of faeces is speckled with about 10-20 cc. of saline and the resultant mixture passed through a fine sieve. The residue is allowed to settle, a few drops of the sediment are pipetted off and examined by eye.

(3) Melting and hand technique. This has many variations, but speaking generally the procedure is as follows. The whole stool is washed through a fine wire (10 to 20 meshes to the inch) with water into a flask, which over a fire being needed for this. After about a half an hour the supernatant fluid is separated off down to the lighter portions of the sediment. The flask is refilled with water well stirred and the same procedure carried out repeatedly till the supernatant fluid remains clear. This is finally separated off and the flask refilled with tap water and left to

small amounts. During the process of washing and drying the eye keeps under a thin film, but of course eventually water must be blown on the cornea. When air is blown by light water blowing from the surface probably of the water (in Tokuyasu's case) is blown on the eye as they are used to the best advantage in the water itself, and even is blown with a hand fan, or even the naked eye, as "blows" which bowl-shaped bodies receiving rapidly in a direct source. In this method, as a white stain is removed, the presence of only a very few are well tolerated, although it is only the most valuable test of the three particularly as the white test can give no reliable evidence as to the history or otherwise of the eye.

In estimating the relative value of these three methods of investigation Dr. Anderson reviews a series of 76 paper cases of examinations in which a total of 1,050 steel examinations were made. His findings reveal that by the "Direct" method, eyes were found in only 46 per cent. of cases, by the "Instruments" method in 67 per cent., and by Fungus technique in 100 per cent. Should you be found by the "Direct" method the assumption is that the infection is a particularly heavy one and it is not possible to pronounce a positive test of infection unless a negative finding by the method is confirmed by repeated repeated Fungus tests. "Instruments" although it is, the Fungus test is the only reliable one, and should be the method of choice for diagnostic purposes.

In this case (with the exception of Cases 5 and 10, who were excluded from the history and then lost sight of the Fungus test and an appropriate count was done in each case within six months of their discharge from hospital). Regardless of whether the steel was negative or not found in view of the fact that the steel, as the presence of suspected or doubtful might easily get lost sight of and despite the fact that the steel was found, it was decided to give each a second full course of treatment in the form of water washes. This has now been completed, but at present it is impossible to get full results of steel and blood examinations following the second course of treatment, as a large percentage of the original patients have now left the hospital.

The character of 8 Japanese is a well known fact, though sometimes the Fungus and Malaria stain that if the disease is treated in an efficient manner, a course of 12 to 16 gr. of saturated tincture of iron is usually sufficient. Results with Fungus as previously stated have proved disappointing and it has been reported that even when a large dose of full course of the drug the case has still been so found in some cases. Once the full course has been reached usually there is five years when infection is when bacteria and spores, which have penetrated, accompanied by certain profound anemia and dyscrasia symptoms—the infection is hopeless and the patient dies of infection as some subsequent infection. Having the patient in mind it was determined to avoid this state in the case of this case. For this reason a second course of water washes was ordered in all

group may be). As a result, part of the normal picture of a typical swelling is therefore development of constitutional symptoms in the shape of fever, malaise, lassitude, anorexia, and in a very short time, a marked loss of weight. The histology is an adenoma and pseudotumor indistinguishable in this respect, if cases progressing to cancer. Especially in the area of these lesions, in the chronic leuk group, in which the pathological process frequently spreads to the whole group of regional glands, and the main lymph node and adjacent to the skin, which often as a characteristic purple is less often as a small percentage of cases may show and symptoms of the swelling with constitutional symptoms of the patient may occur spontaneously, but he more commonly the gland swelling tends to go on to an increasing and progressive leading to protracted lymphadenoma.

Indeed as a whole these usually constitutional in the settings under granuloma cancer and chronic leuk or lymphogranuloma syndrome probably escapes mention throughout for it is not an indigenous disease at home and the only cases seen are generally in native returned from foreign ports. But it is not a new condition and has been described for half a century at least. Its typical description of adenoma in an adenoma case in the form of the great mass of evidence which has accumulated to prove its infectious origin—and, further, of that infection having taken place in infancy. Hansen [1] in his most comprehensive monograph has assembled 122 references covering all aspects of the disease and its etiology can no longer be said to be in doubt. The general belief is that a primary lesion occurs in all cases, and the fact that it is so evident even by the physician can be accounted for by its transitory nature and consequent disappearance by the time the leuk has developed while the patients themselves are misled in their statements that there never has been due to its size and general characteristics are frequently magnified and escape their observation. When present it is more commonly found as a small vesicle or shallow ulcer on the skin point, or new leuk more than a pea sized and surrounded by a proportionate area of mild inflammatory reaction. In short it comes and within the time progression of the popular term "pink's disease".

A history of cases within three or four weeks of the appearance of the leuk can be obtained in the big majority of cases, while the not infrequent result that a detail of it may well be met with occasionally. The lymph node usually enlarges, that the fact that there is present neither was the drainage production vascular disease and a small number further mention that, but frequent a negative reply to any inquiry as to recent exposure is possible in any community.

The development of the subject was greatly advanced when Pies [2] published his description of a specific virus for chronic leuk, thus bringing forward scientific evidence in support of an recognition as a specific entity. His origin is proposed from the part of an accepted

can, his description being as follows: "The process from which the antigen is to be made should be proved to be free from tuberculous, and free from chemical diseases, past and present, by chemical examination and negative tests for syphilis, gonorrhea and other venils. The gland from which part is to be withdrawn must be one that has undergone softening but not liquefaction. Dissection by means of a Hirsch sprayer and steel needles under aseptic precautions, as in the case previously stated here, is then carried out. The fluid is mixed, with physiological saline in the proportion of one part of part to five or six parts of saline in a sterile tube and immediately put up in 0.5 to 1 c.c. doses in glass test glass ampoules. To prepare, it is heated for two hours at 65° C. in a water bath and the following day at 65° C. for one hour."

The test is carried out by injecting 0.1 c.c. of the antigen intracutaneously on one forearm and 0.2 c.c. of sterile normal saline into the site of the other as a control. The white pustular wheals so produced disappear in a few minutes. The result should be read 24 to 48 hours and not before, a positive result is denoted by the production of a red diamond-shaped wheal of about 4 mm. in diameter at the site of the injection of antigen, while no change ought to have taken place in the control forearm.

Future Investigation

The results now to be reported are any of a series of cases undertaken with roughly the following aims in view:—

(1) To furnish further evidence of the value of the Fox test in the investigation of tuberc.

(2) To prove or otherwise the assertion that sensitivity in the test results for some time after recovery from chemical toxic is complete.

(3) To bring forward any miscellaneous points of interest regarding behavior in general which might arise co-incident with the progress of the investigation.

The antigen used was prepared as described above in the bacteriological laboratory of the Baltimore General Hospital System. A commercial product, made from the bones of mice infected with the virus of lymphogranuloma venereum, has been placed on the market in U. S. A. and is claimed to be as specific and potent as the best known antigen.

Opportunity was taken, when an opportunity with other steps of the system, to endeavor to submit to the test all ratings who, at any time during the examination, had suffered from an acquired venereal other than gonorrhea secondary to syphilis conditions of the lower limb. In this way a series of fifty-two cases was collected with histories varying from those in the acute stages of the disease to cases whose venereal had taken place some eighteen months before. In it were represented all these classes of venereal encountered at the commencement of this study. The method of carrying out the investigation involved systematic testing of small batches of ratings but any discrepancy in that case was subordinated

100 per cent, lying horizontally, each time, and these responses were noted as "negative", an average being 73 per cent of the ratings being false!

Of all subjects with a degree greater than of suggested susceptibility who were subjected to the test, 100 showed a positive reaction and 50 a negative. The reaction is probably more clearly represented by reversing to a certain extent the three findings of sensation —

(a) Eighty-three cases of aphasia gave seven negative and one positive. The latter result, which at first sight seems a discrepancy, is attributable to a double infection with character lobes and aphasia diagnosed as such at the time on account of the regional lobes having appeared some two weeks previous to the present local character from which the aphasia was isolated.

(b) There were numerous cases in which a frank characterised area had preceded the appearance of the lobe. Eighteen of these were negative to Piers test and one gave a positive result. Closer enquiry into the history of this case showed that the boy had been small in size and had lived on eight days. Two explanations are then possible: either the case was actually one of character lobes in which the primary pencil area had been more prominent than usual or alternatively there had existed a double infection with character and language lobes.

(c) Twenty-five cases classified as character lobes, all showed a positive reaction to Piers test.

The normal controls at all times, showed negative results.

Of the twenty-seven positive reactions, these only were obtained while the subjects were yet in the later stages of the disease, all the others being occurred later. In two of the cases an interval of more than twelve months had elapsed between recovery and the application of the test, and the patient was one of seven months. In none of the character lobe group, had to admit that in no means to be regarded as setting a limit to the persistence of reactivity, which in many cases is probably the life.

At first, an attempt was made to classify the degree of reaction produced and to direct any working with the measure of the interval between recovery and application of the test, but this was found to be entirely unfruitful. Nevertheless it is possible to note that the reaction in the acute stages of the disease and in those recently recovered was more pronounced and frequently developed a secondary motor reaction. In all cases the disease shaped lesion of reactivity was a cerebral lesion, while those of stronger reactivity showed a more varying amount of higher symptoms.

The nature of the treatment which had been employed was found to have no effect on subsequent reactivity to Piers test.

MISCELLANEOUS FACTORS OF INTEREST

In a series of 50 suspected cases of regional lobes and showing that a double infection has been proved to have taken place in two of them, the

prophylaxis reduced the probability of infection from 100 per cent. to 50 per cent. (10 per cent. of the patients) and thus to 10 per cent. of the patients.

The possible test of possible further evidence of the etiologic role of chlamydia infection was also agreed upon. A history of a rise in the white blood count was obtained in 10 out of the 27 cases, 10 out of 10 per cent. Whether the change of 10 or 15, remaining 5 cases can be explained away entirely, but by an acceptance of the view expounded in an earlier paragraph could require a postscript to debate, but one which need reach evidence from the literature area to support [4].

The comparison (in this case, the extent) of the patient's condition point which has been related to as a possible contributory factor in the etiology of the infection that exposure to heat in enclosed spaces would affect the condition of the patient. Of the 27 cases of chlamydia infection, 17 were found to belong to the acute and sub-acute and 10 to the chronic and sub-chronic.

As was only to be expected, the treatment applied in the cases were found to be varied. As no accepted standardized specific treatment for infection of non-specific origin can be said to have arrived, though the use of antimicrobial substances, tetracycline, may vary near to it. One common treatment in the past has been common and, perhaps, with years, unchanged or plain. In treatment has in the chlamydia infection secondary infection which must come, since the germ area is probably one of the most active in the body, and the common result is a deep ulcer which is slow to heal and causes an unduly lengthy stay in the sick bed. As the nature of the reaction or otherwise of any treatment in the fighting with which the patient can be returned to duty, the following table is the most instructive feature, with regard to treatment which could be deduced from the present series. In it, the effect of common ulcers is considered, and any associated treatment is, temporarily ignored. Those cases in which spontaneous rupture of a refluxed ulcer was observed to take place, the contents expressed and the site of leakage immediately sealed with catgut, are included in the non-surgical group, together with those in which operation was employed and those in which recovery took place without following.

	No. of all cases	No. of cases with ulcer	Ulcers healed after 48 hr.	Ulcers healed after 72 hr.	No. of cases with ulcer
Chlamydia Infection	27	17	11	10	10
Chlamydia Infection	10	10	10	10	10

With interest in chlamydia as a means to be avoided if possible, the natural condition, it is certain an effective treatment at an early stage and a prompt discharge from going on to infection. The treatment of chlamydia will be one which affects the progress of the infection while the ulcer is still in a hard condition having a comparatively successful chance of recovery which will gradually over a period of weeks or months, diminish and

disappears, meanwhile permitting the patient to carry on with his duty. While it is not within the scope of this present paper to enter into a detailed account thereof, the only use of microsome autolysis technique appears to afford this prospect. Cohen and Jorley [1], and Kanner [2] have reported help on the value of chemical tests, and as soon as it becomes a practical question to begin therapy in all cases showing signs of regional glauclitic swelling of other than syphilitic origin there is every reason to expect a considerable saving in days between these cases. Advances in its technique will be made, and already improved damage has been safely employed. It is important also, in the cases collected there, the only cases in which any was effected without response to such but treatment were three cases of chronic lobe in which it was initiated in the first few days of swelling.

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REFERENCES

- [1] Cohen, H. P. "A South Tropical Disease." *British Tropical Med. Jour.* London 1939.
- [2] Kanner, E. "A New Microsome in Streptococcus pyogenes." *Brit. Med. Jour.* 1939, v. 48.
- [3] Jorley, J. Chapter VI.
- [4] Jorley, J. Chapter VII. Cohen, H. P. and Jorley, J. *Ann. Dermatol. Syph.* 1939, 25, 101-102.
- [5] Kanner, E. "Origin of Syphilis and Syphilis." *Ann. Dermatol. Syph.* 1939, 25, 101-102.

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THE TREATMENT OF HEAD INJURIES

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and

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Of the parts included within the head the brain is undoubtedly the largest and functionally the most important. Function of the skull is little except to protect the brain as it may cause by swelling of a kind that may compress the brain or open pathways through which the meninges or the brain itself may become infected. It is true that the presence of fracture offers proof of a degree of violence which must almost always have caused some injury to the brain but it is also true that the brain

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[33] 1939, 19, 101-102. [34] 1939, 19, 101-102. [35] 1939, 19, 101-102. [36] 1939, 19, 101-102. [37] 1939, 19, 101-102. [38] 1939, 19, 101-102. [39] 1939, 19, 101-102. [40] 1939, 19, 101-102. [41] 1939, 19, 101-102. [42] 1939, 19, 101-102. [43] 1939, 19, 101-102. [44] 1939, 19, 101-102. [45] 1939, 19, 101-102. [46] 1939, 19, 101-102. [47] 1939, 19, 101-102. [48] 1939, 19, 101-102. [49] 1939, 19, 101-102. [50] 1939, 19, 101-102. [51] 1939, 19, 101-102. [52] 1939, 19, 101-102. [53] 1939, 19, 101-102. [54] 1939, 19, 101-102. [55] 1939, 19, 101-102. [56] 1939, 19, 101-102. [57] 1939, 19, 101-102. [58] 1939, 19, 101-102. [59] 1939, 19, 101-102. [60] 1939, 19, 101-102. [61] 1939, 19, 101-102. [62] 1939, 19, 101-102. [63] 1939, 19, 101-102. [64] 1939, 19, 101-102. [65] 1939, 19, 101-102. [66] 1939, 19, 101-102. [67] 1939, 19, 101-102. [68] 1939, 19, 101-102. [69] 1939, 19, 101-102. [70] 1939, 19, 101-102. [71] 1939, 19, 101-102. [72] 1939, 19, 101-102. [73] 1939, 19, 101-102. [74] 1939, 19, 101-102. [75] 1939, 19, 101-102. [76] 1939, 19, 101-102. [77] 1939, 19, 101-102. [78] 1939, 19, 101-102. [79] 1939, 19, 101-102. [80] 1939, 19, 101-102. [81] 1939, 19, 101-102. [82] 1939, 19, 101-102. [83] 1939, 19, 101-102. [84] 1939, 19, 101-102. [85] 1939, 19, 101-102. [86] 1939, 19, 101-102. [87] 1939, 19, 101-102. [88] 1939, 19, 101-102. [89] 1939, 19, 101-102. [90] 1939, 19, 101-102. [91] 1939, 19, 101-102. [92] 1939, 19, 101-102. [93] 1939, 19, 101-102. [94] 1939, 19, 101-102. [95] 1939, 19, 101-102. [96] 1939, 19, 101-102. [97] 1939, 19, 101-102. [98] 1939, 19, 101-102. [99] 1939, 19, 101-102. [100] 1939, 19, 101-102. [101] 1939, 19, 101-102. [102] 1939, 19, 101-102. [103] 1939, 19, 101-102. [104] 1939, 19, 101-102. [105] 1939, 19, 101-102. [106] 1939, 19, 101-102. [107] 1939, 19, 101-102. [108] 1939, 19, 101-102. [109] 1939, 19, 101-102. [110] 1939, 19, 101-102. [111] 1939, 19, 101-102. [112] 1939, 19, 101-102. [113] 1939, 19, 101-102. [114] 1939, 19, 101-102. [115] 1939, 19, 101-102. [116] 1939, 19, 101-102. [117] 1939, 19, 101-102. [118] 1939, 19, 101-102. [119] 1939, 19, 101-102. [120] 1939, 19, 101-102. [121] 1939, 19, 101-102. [122] 1939, 19, 101-102. [123] 1939, 19, 101-102. [124] 1939, 19, 101-102. [125] 1939, 19, 101-102. [126] 1939, 19, 101-102. [127] 1939, 19, 101-102. [128] 1939, 19, 101-102. [129] 1939, 19, 101-102. [130] 1939, 19, 101-102. [131] 1939, 19, 101-102. [132] 1939, 19, 101-102. [133] 1939, 19, 101-102. [134] 1939, 19, 101-102. [135] 1939, 19, 101-102. [136] 1939, 19, 101-102. [137] 1939, 19, 101-102. [138] 1939, 19, 101-102. [139] 1939, 19, 101-102. [140] 1939, 19, 101-102. [141] 1939, 19, 101-102. [142] 1939, 19, 101-102. [143] 1939, 19, 101-102. [144] 1939, 19, 101-102. [145] 1939, 19, 101-102. [146] 1939, 19, 101-102. [147] 1939, 19, 101-102. [148] 1939, 19, 101-102. [149] 1939, 19, 101-102. [150] 1939, 19, 101-102. [151] 1939, 19, 101-102. [152] 1939, 19, 101-102. [153] 1939, 19, 101-102. [154] 1939, 19, 101-102. 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may be severely lacerated in a case of head injury without laceration of the skull.

The effect may be a part of the treatment of head injury in the field, or that which concerns direct injury of the brain. The commonest immediate effect of such an injury is the loss of consciousness which by mistake is accepted as the result of concussion—a term which provides a convenient cloak for our ignorance of the underlying pathology. A patient may recover from concussion, even though the state of unconsciousness may persist for several days without other evidence of cerebral injury. On the other hand a patient who has escaped unconsciousness may present other and more lasting symptoms of damage to the brain. From this practical point of view, however, the most convenient approach to the treatment of head injuries is by way of a division of the cases according to the presence and duration of unconsciousness after the accident.

1.—PATIENT UNCONSCIOUS WHEN FIRST SEEN

We shall begin, therefore, by considering the case of a patient who is unconscious when first seen by the doctor, and who is reported to have been so since the moment of the accident. Before the patient is moved a few essential observations should be made—

(1) Is there any dangerous degree of bleeding from the scalp? If so, this should be controlled, so far as possible, by a pad and firm bandage, but nothing stops bleeding completely save suture and this will not be possible or even desirable in a trivial instance. It is a mistake to system up a scalp wound properly until conditions are favourable for a full exploration of its depth.

(2) Is the patient injured—face is puffed, with rigid, staring gaze? If so, measures should at once be taken to prevent asphyxia.

(3) Are there other gross injuries, such as fractures of the limbs, neck, or spine, which may be masked by the state of unconsciousness and which demand immediate treatment?

(4) What is the depth of unconsciousness? This question is not simply answered. The following tests provide a rough measure of the degree of stupor from least to greatest severity: (a) Can the patient be roused to respond to a simple question loudly put, such as 'How are you?' or 'What is your name?' (b) Does he respond to a harsher command, such as 'Put out your tongue.' (c) Does he respond to a painful stimulus—for example, does he withdraw his arm or leg when the skin is pinched? (d) Is the normal reflex present.

A note should also be made of the size, and especially the relative size, of the pupils, and of the presence or absence of any difference between the power and time of the reaction of the face and limbs on the two sides of the body.

The Scalp Wound

Whenever feasible the patient should be moved into a dressing house or hospital, and, if possible, a ray photograph of the skull should be taken on admission, except in the case of a patient who is seriously collapsed.

In the stage when urgent problems may present themselves. Unquestionably the most effective method of removing hemorrhage from the scalp is by deep cauterization. Sometimes the spreading of blood from a scalp wound is prodigious. Thwart, working on the blood volume of severe injuries, remarked that the loss from a scalp wound might amount to as much as one-fifth of the total volume. Clearly judgment must be exercised in the treatment of severely exsanguinated patients with debrided wounds. There require excision of their edges, but it would be a great mistake to take this step immediately without regard to the state of substance deep, present. The best plan would be to insert such sutures as are necessary to arrest the bleeding, and to leave the dissection of the wound open for a sufficient number of hours to allow of recuperation. Scalp wounds of great size may not very readily. They would most often from glass cuts or motor accidents.

It is the rule to suspect the flow of a scalp wound by evidence of fracture. If there is a linear crack it should not be confused with. If there is a depression the treatment will be that of a compound fracture (see below). If a fracture has a rent it is worth while to note its direction. Does it seem likely to cross the path of the middle meningeal vessel? If so, we should be more than ever on the watch for an external hemorrhage. The operator should always maintain his impression of the fracture by rubbing the ray film, but there are often not available at the time when the scalp wound is first attended to. Scalp wounds are always the better for drainage with a narrow strip of rubber.

Depressed Fracture

If a depressed fracture is present, should it be operated upon? Always, if there is a scalp wound over it, for infection of the bone that may spread deeply is a real danger, and, moreover, operation should be performed within a few hours as is judged wise having regard to shock and loss of blood. A very limited bone removal is allowed after removing a small clot at the edge of the depression. The object of the operation is not to reach the depression of the depression as the extrusion of infected debris and the presence of external drainage. If the scalp over the depression is intact there is no need generally to intervene, unless the x-ray film shows an obvious bone fragment, such as may have penetrated the dura. If there has happened an operation should be undertaken within forty-eight hours.

We believe that a shallow depression does little permanent harm, and that epilepsy is no more likely to develop in such a case than after a general cerebral contusion. The more potent cause of epilepsy is head laceration.

It is difficult, even for the expert, to determine by clinical examination precisely how far the patient has gone or is going through or is to be saved from head injury. But simpler, but less, questions are posed dependent features will very rarely be done.

General Instruction

On admission to hospital the patient should be laid flat on his back with his head to one side. A more thorough examination should then be made. This will include the pupils already mentioned together with a record of the pulse temperature and respiration, examination for fracture or wound signs, and a note of the position-pupils, reflexes and reflexes, and plantar responses.

From this time onwards the nurse should keep a record at regular intervals not only of the pulse-rate but of the depth of unconsciousness as indicated by the knee already mentioned, of any difference between the two, and of any on the two sides of the body, and of the reflexes are lost or pupils. During the first forty-eight hours the record should be taken hourly, and should thereafter be continued at a less hourly interval until consciousness has been regained. During the early stage of the period unconscious should be avoided if possible. There should be given by spoon or feeding cup. A watch should be kept on the bladder and the need for catheterisation.

Danger Signals

The nurse should be instructed to call the doctor on each of any of the following developments: Progressive deepening of unconsciousness; progressive loss of tone or power on one side of the body; progressive dilation of the pupils; and progressive dilatation in the case of the pupils. In such cases the questions which the doctor is called upon to decide are whether there is sufficient evidence of progressive meningeal haemorrhage to warrant exploratory craniotomy and if so whether he should attempt the exploration himself or call in his aid a surgeon with previous experience of cerebral surgery.

With regard to the first question there are certain preliminary considerations to be weighed. Progressive deterioration of the patient's condition in the early stages after a severe injury is not necessarily an indication for urgent intervention. There is a large group of cases in which from the outset the depth of unconsciousness is profound—on account of painful stimulation, often absence of cerebral reflexes—the pupils remain fixed, whether it be slow or rapid, the temperature is either progressively subnormal or there is a protracted rise, and the patient usually dies within the first forty-eight hours without the development of any striking signs.

The cause of death in these patients is ischaemia of the brain. An operation can save them, and each claims that they may have a better if they are left alone. The point which is of greatest value as evidence of

compensation from existing hemorrhoids is an abnormal, rapid, or uncontrolled. In such cases it is dangerous to stop a hemorrhoidal degree that may come to a state of anastomosis without compensation. It is not uncommon to find a patient who for the first time in 100 years after diagnosis is able to answer questions in a direct fashion but subsequently becomes unresponsive to the test and even to simple questions, though he will exhibit spontaneous reflex movements and will react to painful stimulation, and in this state he may remain for several days. It is then, the degree of anastomosis in relation to its vital depth that has to be taken into account, with especial emphasis upon a depth which is steadily progressive, and loss of the response to painful stimulation. A hemorrhage which is unobtainably progressive is a clear indication for operation. Progressive slowing of the pulse-rate is of value when taken together with the above indications. In the patient who shows no progression in the depth of anastomosis or other danger signs a slowing pulse rate is not necessarily of importance.

The delayed appearance of a dilated pupil, though it may sometimes be due to conjunctival edema, is always suggestive of a concealed hemorrhage, usually on the side of the dilated pupil. In case of doubt it is better to explore and it is to be remembered that acute subdural hemorrhage is an unusual cause of conjunctival edema as the latter known subdural hemorrhage from the middle meningeal artery and that the latter, on independently, occurs in the absence of a lesion. The exploratory operation, therefore, is not complete until the dura has been opened. Whether the general practitioner will attempt the operation will naturally depend upon local and personal considerations which are outside the scope of this article. If the progress of symptoms is rapid from time to time there is of the first importance, but when the development is remarkable in terms of days there is usually opportunity for a carefully planned operation and there is much to be gained from the service of a surgeon accustomed to the modern technique of lumbar surgery.

Technique of Emergency Operation

If an emergency operation is to be undertaken on a patient under local anesthesia—Winn of novocain (1 per cent) and adrenalin. Through a vertical incision 4 to 4 inches long on the temporal bone, 1 inch or less of the cut on opening is made in the temporal bone after splitting the muscle. When no external hemorrhage is present the dura is at once seen. The dura is quickly enlarged and the site corrected as far as possible. There is no very great difficulty as far as the opening of the actual bleeding may be in any matter and pin down have to be used on a pack. This of course, is undesirable for its volume might well equal that of the clot removed and every effort must be made to withdraw the retracted artery with an aneurysm sac. There is no doubt that this operation is a much more difficult one than continuously exposed and when the bleeding comes

and being slowly lowered to spot the only good way to arrest a *p. fr.* phlegmonous or thrombotic abscess with a shaped piece of mastication. For an abscess of the cerebellum, and then one near the posterior meningeal artery, the head is to be

transmitted into a very dark large well support a masticated bouillotte. A few bits of dark muslin will suffice to show whether a subject has been exposed or not. Attempts at restricted exploration are not recommended through the limited approach without shaver. A small dry sponge is much better approach but it requires considerable experience and skill in the making of the patient's choice of recovery or death to be successful.

The *dec. sup. cerebri* has long been known to be seriously threatened when one believes to be due to the excessive passage of cerebrospinal fluid through the often undisturbed covering that so rapidly converts an uninfected abscess into a fatal one. The double action of the very existence of the contents of such a cyst, so that it could be dealt with through a small opening if this happened to be near it. But a small cyst that a day or two ago a unilateral headache allows of better exposure than a large one not suitable at treatment, even in any event.

Combination of General Treatment

The administration of sedatives should be proportioned as far as possible and from time that the depth of sleep is diminishing, and they should be given with an interval a natural degree of mastication. In severe cases sedatives may be present from the first, and in these sedatives will be useful—

a	Chloroform	b	or 10
100 grains		or 10	
10 grains		or 10	

The sedatives should be taken in two ounces of water up to five hours of sleep. Morphine should be avoided as far as possible, but in other cases may. If a patient is sufficiently restless and vigorous to require it, it will be less so later. In fact, it is that it will be possible to develop some of progressive stages. Small doses of 1 to 2 gr—should be given and repeated when indicated, the patient being allowed to recover from the effect of each dose subsequently for an assessment of his mental state before another dose is taken. Hypnotic hypodermic 10 gr to 15 gr may be combined with the morphine if necessary for extreme restlessness, but should be avoided if possible owing to its toxic effects. For the patient who is weak and unmanageable at night paraldehyde, 3 to 4 drs in a suspension of orange juice and water is an effective hypnotic and may be followed by one or more doses of the chloral and bromide mixture. When the need for food feeling is present the patient may have whatever food he can take. Alcohol should be forbidden.

Control of Intracranial Pressure

At the end of sleep, or hours, if the patient has recovered from shock but is still unconscious, lumbar puncture should be performed. The

position of the head should be maintained by means of a pillow, and if it is above the nose of water, fluid should be removed until this level is reached. If the pressure is above 200 mm. or there is any of the following symptoms as may be practicable should be employed for the diminution of intracranial volume and pressure.

The patient should be propped up as laid in the Fowler position. A solution of magnesium sulphate 5 cc. in 10 cc. of water, should be administered per rectum. The solution should be warmed and run in slowly through a tube and funnel and has to be retained for half an hour for a successful result. Or 5 drs. of magnesium sulphate in 5 oz. of water may be taken by the mouth and thereafter 1 drs. of magnesium sulphate in the same amount of water hourly until a watery stool is obtained. Lumbar puncture should be repeated daily if the pressure is over 200 and at less frequent intervals when the pressure is lower with damage to a normal level as already described. If in the last lumbar puncture the pressure is normal these methods of treatment will not be required, and as the patient becomes more conscious he should be encouraged to rest in whatever position he finds most comfortable.

It is difficult to lay down a definite rule about the use of intravenous hypertonic solutions (the best being 50 per cent glucose). There is no doubt about the potency of this method of therapy. There is no danger. Certainly it should never be used during the first hours when surgery. In those cases in which more than two lumbar puncture readings have shown the pressure to be above 200 mm. the injection of hypertonic solutions is allowable, but one must be reasonably sure that no large blood clot is present. In most cases intravenous hypertonic are best avoided.

After Recovery of Consciousness

As soon as the patient regains consciousness to the extent of being perfectly and continuously aware of his surroundings, a new phase of treatment is begun in which subjective symptoms guide the degree and duration of needed rest required. The symptoms to be looked for are headache, difficulty in concentration mental fatigue, nausea and vomiting or incoherence. So long as any of these symptoms are present the policy of strict rest should be continued and this should be continued by, without 5 to 10 gr. NaCl , water and a mixture such as —

R.	Pin. brom.	gr. 10
	Eq. powdered	gr. 10
	Eq. alcohol	oz. 1/2
Sig. i. d. q. i.		

For the headache the patient should be encouraged to find the position of greatest ease, and, if necessary, should be propped up. Lumbar puncture should be reserved for severe headache, and the thermometer should be employed as a guide to the further need for withdrawal of food and stimulants by means of rules as already described. One or two tablets

The patient should be given food and water on his own initiative, or assistance in getting up for drinking, or in eating, according to personal desire, or when he is able to do so. Solid food should not be given until he is able to get up of himself, etc., p. 6.

The proper management of the patient at this stage is of great importance, and often leads to painful difficulties. In the detailed instructions which follow we shall be precise in order that we may be clear, with full recognition of the fact that only some of modifications according to circumstance.

Graduated Convalescence

Under nursing home conditions the patient should be turned as he should be used to rather than allowed to rest, and should be permitted out more than any visitor who should remain with him for short periods only. The room should be darkened for part of the day. Restless, however, may induce a degree of restlessness which is itself harmful, and allowance must be made for this factor in handling the individual patient. The continued presence of a quiet nurse and occasional relatives or friends in the room will be of help in some cases. When under such conditions the patient has been free from symptoms for forty-eight hours, or if after complete recovery of consciousness he has at the end of those days exhibited no symptoms, a plan of graduated progress towards greater mental activity should be begun as follows:

The patient may have some mental exercise for an hour in the morning, such as listening to the gramophone or wireless, working at a puzzle or crossword puzzle or playing a game of cards. In the afternoon he may sit up in a chair for an hour. If under these conditions there is recurrence or development of symptoms the conditions of strict rest must be reimposed. If on the other hand the first step towards greater activity is successful at the end of forty-eight hours he may take the next. He may be allowed up to bath and lavatory, may read or write, and may have a few visitors, though not more than one at a time.

If he again remains symptom free, at the end of another forty-eight hours he may dress and sit up in his room, and may have visits from one visitor at a time. If he remains well after another forty-eight hours he may begin to walk down the stairs, go out for a short walk or drive, and lead a quiet life in the household. If, after the same interval, he remains well walking exercise should be increased, and he may be allowed a normal life at home. If at the end of another forty-eight hours he is free from symptoms, he should have three days' holiday, proceeding gradually to a fully active existence before he returns to work. Recurrence or development of symptoms at any stage should be the signal for a backward step to the point at which the patient was symptom free.

The plan of graduated convalescence may be applied as well to patients who have been long unconscious—for instance for ten days—or to those in whom the duration has been brief—the converse, ten hours. In practice

it will be found that the following discussion of postoperative problems attended by some, severe, and prolonged shock, suggesting that it is a condition which there are striking exceptions.

Under hospital conditions, nothing is to be gained, nor the smooth progress toward greater activity is to be gained. The more protracted stages should be observed. In the earlier stages the patient's bed should be removed and should be in the quietest part of the ward. It is better that he should have his water at some time removed from the bedside and some of a resting day. On first getting up he should sit apart from the other patients in a quiet corner of the ward or balcony. The transition from the relatively painful surroundings of the hospital to those of the home is often too abrupt, and leads to recurrence of symptoms in a patient who is thought on his discharge to have recovered. He should therefore be kept in hospital until he has been able to lead an unobtrusive existence both indoors and out for three or four days without symptoms, and should then usually be transferred direct to a permanent home.

Return to Work

According to the plan, outlined it will be possible at the optimum for a patient to return to his work, to finish or lose weight from the time he recovers consciousness. On the other hand the graduated progress may have to be spread over a period of several weeks or months. In any case in which the duration of unconsciousness has been longer than forty-eight hours, the patient should be advised to take 10 grs of potassium bromide at night for the ensuing two years as a precaution against epilepsy.

This plan of early return to work may strike some readers as very hasty, but the plan has to be that symptoms must be our guide. Where there are none the above programme may be safely followed out. There is nothing to be gained by prolonging an unexcited consciousness. An extended rest would not result in a cure and for the time of a nervous developing, but there is this danger and too obvious an attitude may be taken. On the other hand we must give sympathetic attention and confidence to each complaint as only constant to give trouble, and where there are complaints we must alter our plans to deal with them. In particular, we should remember that an undue liability to fatigue (both mental and physical) nervous and difficulty in concentration are common cerebral symptoms of organic damage and must not lightly be dismissed as nervous. The kind of work to which the patient must return has also to be taken into account, and in relation to this we must emphasize the importance of telling the patient, as far as possible, to let fall a quantity before discharging him finally recovered, whether by means of mental or of manual labour.

Finally, the point we would stress is that the date of return to work should be determined by each individual by analysis of the symptoms in his particular case. It is not everyone who will be well enough to begin work on three or four weeks after a severe head injury, sometimes it will

is, there is no mental impairment or absence of consciousness in itself, present, but usually prolonged partial state only in (conscious) very mildly injured, except by patients with symptoms of focal injury, but transient aphasia.

II.—BARBARIC IN MORE SEVERE TRAUMATISM.

The period of unconsciousness in the case of a patient who is conscious when first seen, but is reported to have been unconscious, will usually have been less than an hour. In such an event it is important that the degree of mental abnormality should be estimated at once, and that it should be estimated again after the patient has been put to bed, when a rough neurological examination should be made, as described in Section I.

The period of sleep (as in such a case) should be long, eight hours, after which continued progress should be attempted on the same lines as described in Section I, but with an interval of twenty-four hours between each step and with a second of three or four days' holiday when progress is unobtainable. If symptoms are present, or if they should develop after a lapse of several days, they should be treated as already described, and the interval of freedom from symptoms before the next further step is taken should be forty-eight hours. The skull should be x-rayed as soon after the injury as possible.

III.—MERE UNCONSCIOUS.

If there are no symptoms, the patient, who has not been unconscious should be rested in bed for twenty-four hours and may then be allowed to return to his normal way of life. He should, however, be warned that symptoms (headache, giddiness, etc.) may occur after a latent interval and that he must report at once if they do so. If symptoms of this kind are present from the first, or appear later, they should be treated as exactly the same here as those described in Section I. The patient who has not been unconscious may prove to require treatment as carefully and prolonged as the man who has been unconscious for several days. The necessity for x-ray examination will depend upon the nature and severity of the injury.

CHRONIC POSTURAL HEADACHE.

Chronic, relieved headaches should be considered as a rare sequel which may complicate head injury, even without unconsciousness, especially in elderly patients. The development of progressive headache, depression, or insomnia a few weeks or months after a head injury must therefore be reported with the same suspicion and treated in the same way as it would be in the earlier stages.

CONVULSIONS.

It is advisable to inform the patient who has had a head injury, whether severe or mild, as soon as he is able to take an interest in his condition, that symptoms such as we have described are common and consequences of long duration, but are benign, and that complete recovery is the rule. He will need often to be told that the time spent at rest will hasten long symptoms as present and will prove a necessity in the long run.

DISPENSE OF THE GALL-BLADDER

By DEWEY C. L. FITZWILLIAMS, M.D. 1942.

Until now, a student the surgery of the gall-bladder hardly existed, the gall-bladder was considered to be inert and only rarely was the organ considered as its treatment.

In a few days the surgery has gradually developed and seems to have reached its limit. It is therefore well to review the present situation. Many terms such as strawberry gall bladder, mucous and even carcinoma have crept in, but they mean little and have no clinical importance. All gall-bladder diseases are phases merely of gall bladder disease and nothing more.

Function of the Gall Bladder.—Every animal has a gall bladder, some do not, even members of the same species may differ in this respect. As a storage chamber for the bile it is analogous, it can only store bile as long as time and the output of bile is about two grams a day. It does, however, absorb water and so concentrates the bile, and this is probably the explanation of the frequency with which the walls of the bile are crystallized out as stones, either as cholesterol or as particles of cholesterol which is also secreted by its walls.

Disposition.—Of the methods of entrance of the gall-bladder the ascending route from the duodenum is the least important. The liver is the largest existing organ in the body and so commences with all other existing organs one of its chief functions is to secrete the substance which normally runs the blood stream. So long as the living substance of the bile duct is healthy the substance merely pass through, indeed experimentally, substances have been injected into the interior of the gall-bladder without result. If the substance came in contact with directed or injured mucous membrane something pathological may occur. Also if substances pass across to the walls of the biliary tract trouble is liable to ensue. It is not surprising therefore how intimately related are the lymphatics of the appendix, duodenum and gall bladder, nor that disease in the cystic tube is set up disease in the other. The statement that, as it is called, of appendicitis gives also and gall bladder disease is no exaggeration.

This is the common source of infection and the organisms are non-harmless streptococci and *E. coli*, sometimes *S. typhi* is also present.

If there is a free flow of bile little is likely to go wrong. When obstruction and stagnation comes either from inflammation and swelling of the mucous membrane, or from the pressure of stones, then the gall-bladder is turned into a culture and a stone is precipitated as in the appendix.

* Cases referred to in the first London Course. *4 Mayo's Hospital September 1939. *Reprinted from the Mayo Hospital Reports by kind permission of the Editors and the Author.

Mild inflammation of the gall-bladder, arising from a cold, is not infrequently met with in the gall-bladder.

Form of pain.—An attack of these symptoms, such as the blood may sometimes change in other organs and tissues. Thus rheumatic inflammation may all have their origin in the gall-bladder.

More grave still are the hemorrhagic palpitations and some cardiac affections, and I would add that if in such cases gall-bladder trouble is suspected the best condition is an indication first rather than a last in operation.

General Treatment.—Though gall stones have passed very largely to the surgical side of medicine the operations of the physician is often useful. Where there is no hurry the weight may be reduced by diet, massage is useful.

I am sceptical of any drugs having much effect upon the organism of the bile though hydnastem and real manure are sulphate may be tried. Hydnastem sometimes reduces and keeps down all have their advantage, but so will any new drug of which the advertisements speak highly. The removal of the stones which cause the obstruction is the only certain procedure which will produce permanent results.

Cholical Jaundice.—The simplest form of trouble in the biliary tract is choledochal jaundice, which usually affects the young persons after some gastric disturbance. It is due to an inflammatory condition spreading from the duodenum and closing or partially closing the outlet of the common bile duct. It is accompanied by a heavily depressed feeling when the patient suddenly sees everything in the world has been for a melancholic in the extreme. This depressed feeling lasts twenty-four hours and then he wakes up quite cheerful. All but worse are given, he gets out of bed but the first look in the glass gives him a fright. His is infinitely yellow and he passes water the colour of port—on a scale he gets back into bed and sends for a doctor. His stools are clay coloured and he is a typical picture of mild gall bladder disease.

The whole thing passes off in a day or two on a convalescent diet, a little gall and a dose of salts and nothing more happens. It is the mildest form of gall bladder trouble and gives a most typical picture.

Stony Colic.—This is also a striking picture of fully developed but it is often mild and the contents of the pouch are reduced. It is due to the impaction of small stones in the neck of the gall-bladder or their passage down the cystic duct. There is sudden acute pain in the right of hypochondrium and of an acute character. Anyone who has seen a patient taking on the bed or on the floor, pressing with both hands over the upper part of the abdomen, moaning profoundly and constantly waiting is not likely to forget the scene. Motion is the only thing which relieves the spasms which coincide with the passage of the stone or its slipping back into the gall bladder. With the passing of the pain the necessity for an operation which would be indicated at the time

After some few minutes, which it is only with a strong or fixed attack that an operation is considered. The main aim is to remove, and hope that it has done, is left the broad, free, if possible, so that the broad is left to drain it. Even if it has passed it must be not considered that small stones are usually multiple and the symptoms will probably return.

These attacks are clear indications for operation and the gall bladder should be removed with the retained stones.

It might be argued that opening the gall bladder and removing the stones and draining the organ should be enough. As, however, we cannot prevent the stones returning to a bladder now known to be diseased it is wiser to remove it altogether. If left behind, return of the same symptoms at a later date is to be expected, and then removal of the gall bladder is made more tedious and dangerous than the immediate operation. On two occasions I have seen women who have not had the gall bladder removed and have suffered from a return of their troubles who refused to have a laparotomy performed again, on whom I have been obliged to do a modified operation. I passed a needle into the case where the gall bladder was drained knowing that that was the place where the gall bladder would be attached to the abdominal wall. In each case I had the stone without difficulty. Passing a thin bladed needle down to the stone and then enlarging the track with forceps I was enabled to remove the stone.

Acute Obstructive Cholecystitis.—This is an acute surgical emergency, often coming on suddenly in an apparently healthy person. The patient opens up, as a rule, clearly drawn and easily recognized. There is a sudden severe pain under the right costal margin. A hard and tender right hypochondrium accompanied by tenderness and hyperaesthesia. The right rectum is on guard over an acutely distended and inflamed gall bladder there is a rise in temperature and a quick pulse. Inaction is shown. The diagnosis is easier in a full than in a thin case in a short but one with a previous abdomen where the upper abdomen tells one the appendix organs and there is no previous history to guide one.

In my experience it is most often a large stone impacted in Roussier's pouch or there are two biliary stones which look as if one had divided.

Now the gall bladder is a strong fibrous structure which will resist a good deal of pressure and distend from a well inflated appendix which rapidly gives way. We are therefore justified in waiting, knowing the progress and knowing if the gall bladder will not take place for at least forty-eight hours during which time the symptoms may subside from leakage of the contents past the stone and relief of tension. Some surgeons prefer to do this, giving morphine and oxygen and applying hot fomentations.

If delay is decided on a leucocyte count should be carried out and operation delayed no longer if the count indicates pain. As a rule, however, twenty-four hours have elapsed from the onset of the symptoms before the surgeon is called in and in most of the grave possibilities which may come with procrastination I always prefer to operate at once.

In one case I do a laparotomy and bladder but getting inside the uterus from the uterus it is much enlarged (one only was seen, the other was not). Then I know that the uterus is present. I remove the bladder from the lower and work towards the fundus. Women are so much concerned that on two occasions I have had the gall bladder come away in my hand as soon as it is free from the liver, and this should be remembered and always applied before any traction is made.

A small operation is given at once to clear the symptoms from the circulation.

Miss M. aged 50 a healthy woman was used to suffer from a weak heart. With no warning she was suddenly taken with acute subacute pain which were confined with dyspnea, and I saw her next day. A large hard tender gall bladder was felt. She had had no symptoms pointing to this previously. She had no painless. I treated the pain that day should (but not, or, at the next, two large stones).

She was opened and had one of the largest gall-bladders I have ever seen. It contained two large stones. I managed by discharging the stones from the fundus of a probe and finally, empty the gall bladder into the circulation. The gall bladder soon nearly away from the liver but the probe gave way just as I applied the stone.

The young man might perhaps subsequently as she looked into the same days. She made a good recovery and is as well as ever again. Her heart trouble has completely disappeared.

Chronic Gall-Bladder Disease.—The previous chronic patients are all simply debilitated, they are a few, defined and later more readily seen its surroundings. Its main feature is chronic digestive disturbance, indigestion, flatulency and water-baths over a long period. Often not enough to read the patient to seek advice till after she (it is usually a woman and child) has become so accustomed to it as to regard it as her normal condition.

When she does consult a doctor her story is usually long, the details of what she can and what she can't have go on. The work of the doctor she has tried and the child that she is always about to try are all passed into her mind. The mistake the doctor may separately see that the symptoms have no relation to the taking of food, but of eating to eat badly food, an occasional pain in the right upper region and perhaps the history of an attack of colic, years previously which places the diagnosis beyond doubt.

Often however, she is put on laxatives and dieting and does not until she again consults her doctor. There is only one thing that matters here and that is the history of any operation which is the only cure. The patient is of course, congested and every patient is quite reasonable but some will get well without operation and when I want to emphasize is that long standing vague dyspepsia in his people are very often due to an enlarged gall-bladder. This class of case is, in my opinion, the commonest of all. How widespread and a mystery it is now. Only positive evidence of stone or a non-functioning gall-bladder is of any value a negative report

should be disregarded entirely and the clinical evidence alone considered. Too often a negative report is taken to mean a normal gill-bladder. As a rule the operations present no difficulty and there are surprisingly few after-effects as the patient has never had a really acute attack.

Since in the *Common Hole Duct*—I now direct your attention to the condition which hardly is rare, and that is an enlarged stone in the common bile duct.

Here we have a picture shown with remarkable accuracy. Itardes constant but varying from time to time from a light yellow to a deep brown. Intermittent pain which becomes worse as the blood becomes alkaline and the pancreas deeper. The increased pain also is accompanied by a rise in the pulse-rate and a sudden rise in the temperature which, however, is often of a very temporary nature so that a daily chart will show a spike in the evening rise and fall of intervals looking like unobstructed space. This is accompanied by degeneration in weight due to loss of the fat in the liver and the tendency to deposit food, especially if the stone is in the capsule of Vater and the pancreatic flow is obstructed also. There are the usual clay-colored stools and gastric-like vomit. In cases of the stone is unacted and much interference occurs. If the outline of the liver can be made out it is found to be enlarged and to try to be tender, but an enlarged gall-bladder is felt.

These cases always give rise to anxiety. They are easier of course, to diagnose in the first than in the last. They are often complicated by the presence of an ill-defined tumour in the neck due to an obstructed pancreas, and this in old people may suggest carcinoma, and it is not always easy to decide. The main point upon which one has to depend are that in carcinoma the loss of weight has preceded the onset of pain and may slowly have been noted, in a common bile duct blockage it follows it. In carcinoma the pain is almost always there all time and the temperature remains normal in common bile duct block pain and rise in temperature are marked. In carcinoma the pancreas flow may vary once it sets on in common bile duct block it varies in degree from time to time. If pancreas is accompanied by nausea and vomiting of the bile there can be no doubt that carcinoma is present. The following case just shows the difference sometimes encountered.—

Nov. 11, 1904. 78 days and upon suddenly became deeply jaundiced and remained so. The history gave little help. The last always been along with pain in her joints and with small runs of temperature. She passed her time. Since it is a diagnosed medical history now that she followed her children that in the last attack she would not live long—a pancreas which, considering her advanced age, was might suppose was unusually safe. Her daughter in law a bright medical student, when flying her own studies that year exhibited a not admirable case in the pancreas of an extensive black reaction as so to be ready to appear, suddenly appeared in the old case, before the other children were ready for the boy in the spirit. Also for her forthrightly mean from years have when the stone which had been partially moved was thoroughly out of the duct; the old lady expressed surprise by passing a large gall stone by the liver. Her

examined only 19 with a good large gall bladder, displaced right, as in a single dissection, and the numerous small gall stones adherent into her liver. The removal of the stone gave relief to some, none. Nothing else could be done.

Miscellaneous.—We all know that the gall bladder is not the only place where stones may form and that they may form in the larger bile ducts. Luckily, however, that is not so if they do form they are washed down the ducts by the bile stream before they are large enough to cause symptoms. The ducts become larger as the stones pass down. Sometimes, however, stones are met with and where phlegmasia may have been produced they may give rise to a very formidable complication.

My children, aged 25, had had her gall bladder removed twelve years previously. It was taken away all with numerous symptoms mainly pointing to obstruction. I spent two and a half an acute obstruction twelve months before the operation, several days in an asylum looking after her. He made a good recovery. Some two years later he again complained of pain in the abdomen. I was so great afraid as to his condition as to send him again to hospital. He rapidly became worse, vomited continuously, his pulse became quick, he had a high temperature and was deeply jaundiced. After forty-eight hours symptoms of acute peritonitis developed. With his previous obstruction in my mind I opened him. He had a little bile pus and the bowel was distended and red and blue, but all I found through it was an abscess and then, thinking I must have overlooked something, examined him again without success. I closed the abdomen and he died shortly after. Post-mortem. All his organs hepatic ducts were found to be blocked with calculi lateral which pus had collected and one duct was perforated.

I have already referred to the changes wrought by gall bladder disease on other organs and the following case illustrates this fact as well.

Old O. C. aged 75 had been treated for years necessary heart blood for months with diet and morphine, rest and had improved temporarily. He had a good deal of prostatic and abdominal pain. He also had some other cardiac pains in the back.

He was suddenly taken with acute abdominal pain which radiated round his right margin. He vomited several times. He got relief from morphine.

He was killed five men and on examination a large and tender gall bladder could be felt. He was dead very quickly. The X-ray report was as follows:—

The gall bladder then had all and is grossly pathological. An abscessed abscess was. Another change in the organ.

I had him submitted to the Royal Prussian Hospital.

His physician saw him and agreed that it should be explored. He was opened and a gall bladder which was supposed to be malignant was removed. On opening it many more masses of varying sizes were found. The pathological report was:—

"A very large gall bladder (Ovar. long average diameter 6 cm. wall up to 1 cm thick). It had been opened before surgery."

Subsequently, a specimen called carcinoma of gall bladder. The growth is in a small or irregular masses with a considerable amount of fibrous tissue. It is only slightly translucent, but a few delicate cell walls and possible cells are present. It is infiltrated with eosinophiles and various figures are frequent.

This type of growth is common in the gall bladder. It is generally follows an inflammatory process associated with gall stones as in this case. The

metaphors from colonos to agnoscere agnoscere is then attributed to the inflammation before the carcinoma started.

He made an unobstructed recovery and has not been bothered with his hernia. His entire medical past has been very much easier. I wanted to note that the malignant carcinoma would probably come out in fact with an enlarged liver a few months later.

The connection between the appendix and the gall bladder has already been referred to. My belief is that a very large number of cases of gall-bladder diseases have their origin in disease of the appendix.

Stones opened into the lumen of the appendix are carried directly up to the pylorus and gall-bladder and cause their own trouble. The exposure absorbed by the lymphatics of the appendix must be carried up to the gall bladder. We know that it is the organ, in the gall-bladder, of all which do the harm.

Tom P. aged 60 had suffered from slight indigestion for a long time. It had been suggested that she had had slight attacks of appendicitis. She was taken a steady off with great pain over the liver. The had to have surgery and I was asked to see her. She was evidently suffering from acute cholecystitis cholecystitis. Operation was performed and the diseased gall bladder containing a large stone was removed.

She made excellent recovery. Two months later she had another attack of indigestion. The passed off for months later she had another attack which was diagnosed as appendicitis. Again she was operated upon and a long severely diseased appendix was removed. On opening, I the patient condition was found to be much better and to end and the whole already benefited with pain.

She is all a good recovery.

There is a point in these operations I should like to stress and has pointed to among the many and that is the length of operation a person may stand. Many of these patients are of advanced age. Many are fat, most extremely fat. They are old, hard people up to become lividities on my stomach and often have witness of good living and a little more alcohol than is necessary little extreme, and we naturally made of life. To subject these people to a long operation upon them is great and.

I had a friend a fashionable generalist, of the type I have mentioned. He had gall stones which did not trouble him much, but he at last decided to be operated upon. He shows a slow deliberate and very accurate manner. I should have had three quarters of an hour for his operation and so more of it was over an hour he would have the pain rate. The operation took two hours. Death would follow the increased discomfort and that is the reason he was a few weeks later.

and, consequently, a fast, efficient remedy. This is covered in the way skin and drying, the lesions may be painted with spirit. The lesions must be desiccated. When this period has elapsed the lesions should be painted twice daily with one of the accepted preparations, e.g. *Carbolic acid*, *salicylic acid* and *benzoic acid* in spirit, or the various preparations containing antiseptic germicidal in liquid prepared. No attempt should be made to differentiate between these various points in the results of treatment with each agent shows each variation; that it would be sufficient to determine. Any special recommendation would be the outcome of a personal preference. Certainly the salicylic and benzoic acids should never be used in strength greater than 15 gr. in the ounce of spirit, and the use of strong antiseptics such as green sulphur acid is unadvisably condemned. The period of time required for treatment has been found to be much longer than was stated in the previous article and must remain a matter for consideration in each particular case. It may be necessary to continue treatment for four weeks or even longer.

After apparent cure every individual must be made by the patient to maintain the feet in as clean and dry a condition as possible. These habits in upthrusting collection of the feet and feet must change from socks or slippers as possible within a week and must wash them from to toes every day. The washing must be followed by most meticulous drying, paying particular attention to the areas between the toes. After each drying there must especially should be powdered with a good drying powder. The addition of a few drops of ammonia to the water is recommended. An athlete has brought to my notice the fact that he has been free from attacks of toe-rot since he acquired the habit of rubbing powdered salicylic between the toes after drying the feet after bathing. Whether this good result is due to a specific action of the salicylic or due to the rendering itself is not known.

The question of prevention remains. It is felt that stamps should be encouraged to wash their hands more frequently than they do and that socks should never be put on large on any person in season. A rubbing should never be a substitute towel. The habit of careful drying and powdering of the feet and toes is recommended to those who may never have suffered from fingered infection especially when living in tropical or sub-tropical climates and during the warm weather of home.

There is no doubt that fungus organisms thrive in some skin areas, and it is believed that the most likely sources of spread of infection are in the feet and among toes. The habit of walking about in bare feet in such places should be discouraged and it would be ideal to provide each individual with a pair of simple bathroom slippers which he alone should use marked with his name. The question of providing in the entrance of each bathroom and dressing with a trough of antiseptic liquid through which each individual would be compelled to pass has been considered but it is doubtful if a solution of a strength capable of destroying

was a definite area of greatest heat, which, of course, gives rise to a fairly directed or "hot" zone on a shoe or boot, corresponding to apparent weakness. The shoe was held against the (anatomical) outer side of the foot, as shown, and small holes were found along the side of the boot, but not the sole and heel, as shown. The right shoe was



Fig. 1. (Photomicrograph of a cross-section of a shoe sole, showing a hole in the sole.)

interior and under the sole of the shoe. The shoe was held against the side of the foot, as shown, and small holes were found along the side of the boot, but not the sole and heel, as shown. The right shoe was



Fig. 2. (Photomicrograph of a cross-section of a shoe sole, showing a hole in the sole.)

The shoe was placed in a position of the foot, as shown, and a small hole was found in the sole of the shoe, as shown. The shoe was held against the side of the foot, as shown, and small holes were found along the side of the boot, but not the sole and heel, as shown. The right shoe was

in weight, and the greater part of the flesh, thickened skin had been removed. The general condition of the patient had greatly improved, the temperature was normal and the groin glands had subsided. The whole of the right foot and leg was now painted with liquid iodine (Parke, Davis and Co.) twice daily, for a period of three weeks. At the end of the complete period of treatment the patient's foot had been provided with a practically new skin and no clinical evidence of any lesion whatsoever could be seen. He was given full instructions regarding destruction of affected nodes and lesions and the future care of his foot, and allowed to return to his ship on June 25, 1920.

Despite the prolonged course of treatment and the apparently excellent result obtained, information was received three weeks later that there had been a recurrence of thickening in the skin of the foot. Here, of course, a possibility that this was a fresh infection from infected lesions or thorns. But the case does illustrate the difficulty of cure. Another man, whose severe infected skin was at first treated on practically identical lines (thorns, no treatment whatsoever after two years, despite the fact that he had been carrying in him lesions

The photographs illustrate the progress of the case described.

I am indebted to the sick berth staff at H. M. S. "Isabell" for the photographs of this case.

THE PRESERVATION IN THE THROMBI OF BLOOD PARASITES OBTAINED BY THE ROMANOWSKY STAIN*

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In a previous communication (1920) it was pointed out that any of the modified Romanowsky stains (Leishman, Wright, Roman. &c.) if kept in solution on a Pyrex bottle suffers no deterioration and retains its staining properties for years under tropical conditions. The author has been using these stains, made in solution locally and kept on Pyrex bottles, for over four years, and every histological detail of blood cells and parasites has been clearly demonstrated. The preservation of these preparations was, however, always unsatisfactory. Fixing of blood smears after staining by any one of these dyes is a well-known and distressing feature of laboratory work in the tropics. While in temperate climates such preparations may retain their original appearance for ten, fifteen or even twenty years, in the tropics fading begins in periods varying from three to six months and in short time smears—in Truroth in all events—the value of cells

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While plantations mature, one often encounters the most common of wild, introduced herbivores, the long-tailed macaque (*Macaca fascicularis*) and occasionally, if the margins of epiphytic forests, orang-utans by proximity, besides the Port Loko, the commonest species: the tall forms, Orang-utans and Trogans which are easily accessible by means of good roads, and at isolated locations. At the latter, where the primary canopy is uncut and thick, where one-level the conditions are similar to an English oak-forest here we have, in September and July, with good grass growth, and patches of every kind can be had at all of which the Macaques are expert. Here a plentiful growth of acorns and to the horizontal, balanced and possibly garish are a variable position.

In the jungle, monkeys, including gibbons, shrews and can often be seen sitting waiting themselves on the sunny rocks. There are 20-3000 head of deer in parts, but many 'phases' of up to a hundred years long periodically, registered to about the forest canopy, while wild pig, descendants of the Dutch domestic variety, roam the heights. Monkeys, introduced originally to control the rice gardens, accompanied with phages, have certainly achieved this purpose, and there are no snakes, but they have multiplied enormously, and over-run the sugar estates destroying great numbers of latex eggs. To keep down the numbers a reward of 25 cents per head was offered. Very shortly a large number of heads was produced which appeared to be a good thing, but as it was discovered that the Chinese were feeding the monkeys in exchange for the monetary reward, the latter was withdrawn.

Only a species of parrot can be caught in the upland areas and taken but round the coast, many, and small round fish, or black macula long fish, coral, shark, and other monsters can satisfy the most voracious anglers. Birds are common and of few species, but others are being made to introduce English and other species. Occasionally a quarry may be seen flying among the leafy forest. Blue birds in a parkland among the coast and in wooded palm-also later by their rapid growth have become a nuisance to the country estate—but the majority of the birds are of less spectacular form.

And it is, then, that in such an apparently paradisaical environment the species of tropical climate should seem to be common. The habitat touches on the north coast and on the south continues perfect, and here the wealthy have longshore which can be fully occupied at night risk for two or three months in the cool season, but at other times it is most hotly to remain in the coastal regions after sunset. These also have suspended parties of tropical islands have collected for their leisure with a host of members of which there is a good deal of the culture of foreign nations, and frequent parties and parties visitors with a death rate of from 5 to 7 per cent. The primary on which there is largely used and is said to be otherwise. The commonest species are *Macaca fascicularis*, *M. f. fascicularis*, and *M. f. fascicularis*. *M. f. fascicularis* being the chief element, but the discovery that it breeds

only on ponds exposed to bright sunlight, but have been successful in producing such reflexive swarms of bees as an emergency system of fertilization is now in process with experimentation on different varieties of cruciferous weeds, peas, pumpkins and cypresses. The most active sub-microbial organisms are taken in the Mullinger moss which extends up to an altitude of 500 ft. but as there is such a multitude of swarms, upon tough ferns, critical ponds, and other forms of surface water, progress can only be slow though a great deal of drainage with good results has already been done and educational propaganda carried out.

Phlebotomy is fairly common to us here by the 11.2 per cent rate of blood containing malarious found by Kirk in 1937 in an examination of 416 members of the general public all of whom stated they felt quite well. The malarious is of a benign nature, lymphatic and glandular enlargements being rare, and diagnosis is only by examination of the malarious blood. The technique involved in the *Macroglossus leucogaster* transmitted by the domestic *Culex fatigans* which breeds in small water accumulations such as are common in sub-tropic provinces, garden ponds, bases of palm leaves, tin cans, etc., but owing to the densely populated the transfer population the control of these breeding places is most difficult. Perforated roofs are made by the majority and town welfare authorities have made of rubbish removed and mounds and mounds left for more hygienic observation, but as a month the state of affairs is as bad as ever.

Although for many years *Myiaria jelskii* was recognized in Mauritius, as which were had been removed from quarantine, and the local malarious host of the parasite was unknown until investigation by Adams in 1932. Specimens of each of a number of named species of said locality procured, including *Cynophila*, *Phrynosoma* and *Phrynosoma* were placed in water containing freshly hatched malarious from the tropical spread eggs on the nose of an Indian boy suffering from malarious. *Myiaria jelskii* was the only insect to show an attachment for the malarious, many being killed by a malarious attack by the larvae and subsequent malarious showed malarious malarious in their bodies. Experiments with adults in circumstances approximating to natural environment in an outdoor small containing growing weeds and covering water into which the selected boy was introduced to malarious daily, gave malarious results. *Myiaria jelskii* have malarious, were later observed, while being studied alone, in pure of total total malarious the morphology of which was that of the characteristic stage of the human malarious, the particular small being therefore an intermediate host of *Myiaria jelskii*. Mauritius is the only one of the *Macroglossus* islands in which *Myiaria jelskii* is found, and malarious malarious is malarious. Treatment is by malarious specimens of each malarious growing malarious, but malarious are frequent. Especially in the hot months it is malarious to wear malarious when, taking in the malarious and malarious, chiefly in the blood, liver malarious and also to use malarious them on the malarious malarious.

Another *Macroglossus* disease with the high malarious rate of 80 per cent

doctors are apprehended (Fisherbury), and he goes on to add: "High as is the present standard of health in H. M. Navy there is reason to anticipate that it may be raised yet higher. Every circumstance should and will be employed for the purpose, and in a matter of such importance any observations, which show that persons only in even well but not only necessary but acceptable."

So far he has said nothing that is not applicable to the present time, but an examination of his Journal shows how he applied the sentiments which he thus expressed to his duties as his ship, as his General Remarks have required 200 pages of his Journal, space does not allow me to publish them in full.

He divides his "General Remarks" into three sections.

(1) The medical history of his ship.

(2) A physiological experiment on the influence of diet and tropical heat on the weight of the ship's company.

(3) A sketch of the climate, medical climatology and physical geography of Eastern Australia, and especially of the Cape York Peninsula, "a hitherto little known and as yet unexplored region."

The latter appears to have furnished a description of his ship as a *peevish Journal*. For he notes that 1864 is the second year of the command and that the ship was employed on special service, viz., "To Round and rat a new colony (Gisborne) and that in a part of the world where H. M. ships seldom go, viz. the (so-called tropical) part of North-Eastern Australia which lies between Sydney and Cape York."

Under the heading of "The Medical History of the Ship," he records that the ship was stationed at Gisborne on December 5, 1864. The average number borne in 1864 was 93, and in 1865 the average was 85. The ship left England on January 3, 1864, and reached Sydney on June 4, 1864. Two and a half years were spent on running trials or three yearly between Sydney where storms, gales, and ice are obtained and the new colony (Gisborne)—five miles from Cape York—which she has to provision and protect.

He divides the Australian States into two, viz., "The North which is chiefly temperate, and the South which is principally extra-tropical. One running ground 1,700 miles long is thus chiefly extra-tropical, with a roughly speaking due North and South course."

The total sick were 108, 121, and 126 cases in 1864, 1865 and 1866 respectively. His comments on the sickness in 1864 are not in the Journal, but in regard to 1865 he writes: "The health of the men as a whole during this year has not been so good especially during its latter part. He gives the following reasons for this:—

(1) Though the tropical shore usually was within six months of Sydney and Moreton Bay, and the usual, known influence of the wind, tropical climate do much to counteract the health of the men, it is not sufficient to counteract the debilitating influence of the tropics.

(1) "On receiving my confinement to this vessel last (224 days in the case) coincident with the influence of the climate, gradually falling on the health of the crew."

(2) "The monotony of the repeated voyages up and down a full coast combined with the tedious of long confinement on shipboard was also affecting their health."

In his General Remarks for 1866, he reports more fully, he had 256 cases of sickness, ten were sent to Hospital and recovered. "Except the last, who died before he embarked for England, no fatal cases occurred. The death was a case of M.C.D., with a history of peculiar circumstances." On examining Matthew Corbin was at once detected by the existence of a loud bellows murmur replacing the first cardiac sound at the apex, but disappearing all over the chest, and increased heart's action with heaving and diffuse impulse appeared even at a distance. He comments on diseases as they occur on the *Norwegian Tule*. He had "several instances of *Debility Tremens*." Of this condition he writes: "In no disease is it more necessary and at times, with the present more rational view is it more difficult for the Naval Surgeon to give an accurate Service report. An accurate statement which neither overstates nor exaggerates the illness is necessary. The interests of the subject, and the character and variety of the medical men must both be considered."

On the subject of dysentery he writes: "Where our knowledge of the geography of disease is more ample and accurate than now it will probably be found that both its local and general, tropical and extra-tropical areas have like animals and plants, certain climatic variation, and that each has its special remedies, and in many its specific. Where any disease prevails its remedy is probably close at hand, the same land giving both to both."

On "Dysentery of the coast" he remarks: "Here as elsewhere it takes the same wayward course, and shows a similar indifference to racial differences. None of those local, e.g. India, *Bacillus Asiaticus* and *Cook's Poison*, *Launceston*, *California Dysentery*, *Opium*, *Asian India*, *Indivina*, etc. could be specially recommended—all seemed equally most a loss, however, including those of chronic form and dyspeptic form, yielded best to Peppor but no great doses of Hygie. Biskier given for the remainder."

His next comments on the subject of dysentery, and with that subject begins his hygienic suggestions:

Dysentery has occasionally prevailed amongst the ships crew, but usually a result of unsuitable and unclean of drinking water. In 1864, he mentions an outbreak in "drinking water obtained from a green succulent and mostly stagnant pool on shore. In spite of medical countermeasures the ship was returned partially from this cause. The water became so offensive that it was thrown overboard, and on removal of the cause and substitution of condensed water, the disease at once disappeared."

Figure 10 shows a pair of 1905 leather shoes made in apparent 50 thousandths, one cleaned here, one leather preserved in oil. The one right is shown that it was treated with oil solution, and preserved which was due to treatment in tanning before the 1905 date. Attached remains found in leather.

The representative materials were pumped out and a fresh supply was introduced (Figure 10.10.1). The result being a speedy disappearance of the material.

(11) *mean-ayen* *ayen* *perayen* *Shan's head* is of a threefold nature, *mean-ayen* and *solid* is *ay*, *mean* and the ordinary aspects, and it is *perayen* as a unity which all the *ay* should be not only in amount or quantity but *ayen*. By *Shan* on the subject of *ay* and *water*.

Impure water and a constant supply are so essential for the majority of people that it is possible that these water and air use the North American continent, only the select and recent populations have been supplied to water it now. Impure water, whether food, and healthy conditions are necessary, among the chief notable symptoms in H.M. because of the lack of it. It is not to open question how the body system and diseases, although it is difficult to as well as several other diseases, due to the presence of various types of natural causes or having organisms that are not in a state of water and air.

He suggests that the adoption of disabled males, and an increased supply of women of childbearing years, was inevitable, but adds that although the new female population was largely poor as it fell from the strata of bourgeoisie political and social status, it was the children of the poor. Now war was shouldered mainly by the rich only, to save the middle and lower bourgeoisie from ruin, as those for drawing need a money purchase. With this object in view he advances the following recommendations:—

- (1) Water for drinking or cooking should automatically be rationed.
- (2) Water to be used for bathing and for similar purposes. This would make a double advantage: a) fewer tanks would be needed and b) tank capacity would be increased by the more frequent drawing of the tanks would not make less time to become stagnant.
- (3) An improved tank is necessary made of galvanized iron sheet steel of one half inch in thickness or better.
- (4) The general tank from which the water is drawn should be covered.
- (5) A large filling or delivery container. It may preferably be placed on the roof of a building.
- (6) It suggests the introduction of a drinking apparatus as used in the Middle East at the time.
- (7) It suggests a water supply bottle connected with a tank where the water supply is from a well or should be better connected to and be extended that far.

(2) The "combined" positive suggestion of disease, greater than said, has given origin to a mode of health and normal disease has resulted.

He continues with regard to disease in the tropics, "First, there are climatic influences, directly so called, which may be with certainty, if at all, prevented, and for which neither the men themselves nor the officers are responsible. Second, epidemic influences, which result from indiscretions or mistakes in sanitary hygiene rules, and for the prevention of which either one satisfies their exposure, or both of them are to blame. Thirdly, those which result from a combination of both causes.

My experiment has now endeavored to determine if disease alone, did alone, or a combination of both produce sickness. He decides to judge this by an examination of his ship's company under varying conditions and to estimate the result on physique and general appearance, appetite, weight and strength, and general health.

He discusses weight as his chief indicator for "Health and weight in the human subject have, generally speaking, no intimate relation that one may fairly be taken as an index of the other."

His first experiment was to take the weights of officers and men at Plymouth prior to sailing, and again after twenty days, the five being on sea on a voyage from a North temperate zone, across the tropics, to a South temperate zone. A second weighing was carried out at the Cape of Good Hope on completion of the voyage. The men were on salt water for only ten days and were given lime juice for eleven days.

His results showed first in two thirds of the ship's company there is an average loss of 14 lb. in weight. In the remaining one third there is an average increase of 12 lb. this increase is more just, he attributes to lack of precautionary as otherwise healthy men prior to sailing. He gives a table of diet record, and notes that this loss of weight is due to increased consumption, for the ship's crew per man showed a slight increase. He also notes that this decrease in weight was not due to disease in any of the forms of disease were caught and treated. He now asks "Was the effect to question the result of exposure to tropical weather or due to the prolonged course of salt water diet, or to both conditions combined? He thinks that salt water diet could not be the sole cause, from the fact that the same thing (loss of weight) happened among the wilderness officers who had little or no salt water.

He continues with a further question. "If we remove one of these two debilitating causes, the climate, what would be the result of a similar lengthy voyage on the weight of the crew?"

Then leads to his second experiment, to show the effect of a voyage of forty nine days from the Cape of Good Hope to England, in a climate altogether temperate on the weight of the crew. His first care to weigh the crew on the day after leaving "Queen's Bay and did not rely on the weight when on arrival at the Cape from England, for as he says, "In

fish: Day the ship lay for sixteen days, during which fresh meat and vegetables were issued to the crew who then had no opportunity of securing their health.

During this voyage the crew were on duty most for forty-eight days, and on leave pass for thirty-two days, two-thirds of the ship's company gained an average of 4½ lb per man. In about a quarter there was a loss of flesh and that only to the small average of 2½ lb per man. He says the result was somewhat unexpected for, "For we might have expected that on a long voyage confined in a tight mess deck, combined with the usual depressing influence of a lengthy stay on shipboard, and the many disadvantages of sea life such as squally, wet weather, damp ship, &c., the majority would have again lost flesh, whereas the contrary is the case. As if the loneliness of the tropics had altered the system from some depressing influence."

He considers that it is proved that "a voyage of moderate length on salt meat diet is not injurious on itself, when the climate is similar to the usual natural one, to support the weight of health. But if to this we add tropical weather, the result is not similar on the side of the loss of flesh, while fewer gain in weight and in those who lose, the decrease is weight is much greater."

He thinks that this proves that a short salt meat allowance of salt meat diet is comparatively safe and even beneficial, but "we know from old experience that under this, when very prolonged, and especially when combined with a more or less total deprivation of fresh vegetables, many serious and often fatal diseases result."

He is not very happy about the result of his second experiment, and thinks that it is perfectly possible that it may be that it is only when tropical climate is compared to salt meat diet that the result is so different.

In Experiments 12, 13, and 14 he tests this point.

In No. 12, the period selected as just after the rainy season.

In No. 13, the period in during the 6th season, i.e. the wettest and hottest part of the year.

In No. 14, it is during the prevalence of the rainy season.

All these experiments were carried out while on voyage from Sydney to Cape York, in two years.

He was unable to obtain a complete absence of salt meat days, but sheep were procured which permitted a frequent issue of mutton, vegetables could not be obtained, but kangaroo was issued satisfactorily on arriving the tropics. He says: "We were placed in circumstances as favourable as is probably attainable in the present state of Navy provisioning."

Experiment 12 showed that more than half the crew gained in weight, to the average of 4 lb per man. He considers that this result proves that fresh meat had a beneficial effect.

Experiment 13, showed a gain in weight in less than one-third, those

(4) Those which he considers to be general, from his clinical experience, namely, (a) while certain tropical diseases are more fatal, and that while both the tropical climate and erroneous diet each contribute to malaise in the body, the combination of the two is usually more markedly injurious; he considers that the erroneous diet can be corrected, and that with a more tropical diet not only will diseases due to faulty diet be avoided but the adverse influence of the climate will be counteracted.

His preventive treatment as now is based on diet—specific, what he has already noted under his remarks on dysentery. He has very skilfully prevented in many a probably case as found the same food going back to both. He believes the same to be a fact in regard to the relationship between diet and climate and states: "While problems related our present day (on the subject) as so much as it does not correspond with the processes in the animal and vegetable world—the interference of our race. Whether life was as good to all, and who perverted both man and beast, both planted life there. He as His process, however, supplies appropriate food for them, and in this case here, there is nearly lost when He has subjected to His own usage, then towards the lower forms of existence. He points from His philosophy to follow." Science has supplied out to mankind with them, but the broad principle upon which the philosophy of dietetics must be based. She has placed a certain kind of food by the side of a certain class of the earth's inhabitants and has fitted them with an appetite to appreciate it.

On these grounds, he says: "It is only a few instances that in all regions we should find provided for us exactly the kind of food we require to suit the nature of the climate, and the bodily wants of the race, and that each race is furnished with those products, animal, vegetable or both, best suited to the food of its inhabitants, whether there be abundance or dearth.

He divides the world into four N. and S. Temperate and N. and S. Tropical zones and explains that he does so, not geographically but doctrinally. He notes that in the Polar zone of cold, wet land and smaller quantities—less rather than body food—and that vegetables are scanty. "In the temperate of central land is the great abundance there. The Temperate zone provides for the people, however, and also those somewhat vegetables, and something of the warm zone, with a view to supplying heat and muscle for the whole habit, both mental and corporeal, of the inhabitants. Lastly, the Torrid zone supplies a diet which is chiefly vegetable, especially juicy fruits, "which having a large percentage of woody fibre fill the stomach and satisfy the sense of hunger, as well as being nutritious and strengthening (muscle making).

But we then see as food is having only one dietary for all the regions and climates. She is giving animal food to the tropics where vegetable diet is needed and shows all up supplying cold meat which nature never made?

He enlarges on the necessity for a special diet in the varying zones for a further seven pages of his journal and ends: "It will now be obvious that the varying diet at present on use, in other words that the present dietary for all climates is highly erroneous first in theory second in principle and third in practice."

He suggests he will only:

(a) A special provision scale is obviously necessary for extra-tropical regions. While

(b) A different fare is required for tropical climates. He severely criticises the unit ration system, of the diet then in existence, and opens up on the other ration.

Of the unit ration he writes, "We are not prepared to enter fully into the subject here—but many reasons—physiological, pathological, and otherwise—might be adduced to show that the present unit ration of meat might be done away with and some other drink substituted for it. He suggests lemon juice and coffee as substitutes."

He gives tables of the unit diet prior to 1860 and at the time of writing, and after comment on these produces his own proposals for meat diets. He details the items in two scales of diet, one for extra-tropical regions and one for the tropics. The scale on fresh meat is based on the first days in each week in extra-tropical climates, and the next days when in the tropics. In the tropical diet scale he halves the quantity of meat eaten whether at sea or on shore, and increases the vegetable ration on the days of fresh vegetables, preserved potatoes, spin peas or rice. He substitutes preserved meat for salt meat, except for one day in harbour and two days at sea in temperate zones, and one day in harbour or at sea in the tropics in each week. The materials are the same in two scales of dietary but coffee and sugar are substituted for rum in temperate climates and lime-juice and sugar in the tropics. He works out the cost of his suggested alterations as compared with the cost of the scale in existence and arrives at the result that for a force of 40,000 men the savings in cost would be 1.17 £s 7½d per day, or £1,266 £s 4½d per year. Then he says, "in a large sense but if it could be connected with the amount that would be saved for hospital and other medical expenses, the balance would necessarily be on the other side."

He comments on each detail of his suggested dietary and gives his reasons for each suggestion. He mentions "The recently discovered disease of Beef of London (*Extraneous cause*) which, converted into soup, would be a considerable item of contaminated aliment for use by our troops. But it requires experiment before introduction into our naval dietary."

He completes his survey of his journal with the details of his suggested nine boundaries.

He suggests taking the two annual average temperatures of 49° and 79° all above the latter are tropical climates, all between these temperatures are temperate climates.

He came and died with the typical signs. Pathological examination of the organs was made and there is no opportunity for a substituted for the above.

The complaint at the last in the Dutch river, which differs of form and in these typical possessions.

It is evident that he has read up his subject, not only in medical literature, but also in naval history, for he quotes freely from both.

His compilation is a journal with 62 pages of information on the Climate, Medical Climatology and Physical Geography of Eastern Australia.

His extent clearly indicates the interest taken in medical officers of H.M. Navy in prevention of illness in their sphere of duty and also indicates some of the practical steps that were taken to improve the service from a medical point of view.

Dr. Alexander Fleming has shown that he had an excellent grasp of his subject in the light of medical knowledge at that time that he took selected parts and spent much time on his investigations and then his evidence were only observations and hence must have been considered not only mediocre but acceptable. He was truly a forerunner of our present Naval Medical Health Officer.

Clinical Notes

TRANSFUSION WITH BLOOD FROM HEPATITIS INOCULATED DONORS IN A SEVERE CASE OF TYPHOID FEVER

DR. A. MASONOW LOWENTHAL, M.D.

S. B., a Russian American, aged about 37, unable to speak English or any language other than his own, was admitted to Hospital at Harkness upon the evening of April 22, 1921, with symptoms pointing to an acute abdominal condition. Temperature 104° F., pulse 90, respiration 20, normal, cyanosis, and marked rigidity of the entire abdominal wall. The chest appeared normal and there was no rash. Urine specific gravity 1.022, pH 5, and abdominal output White blood count 11,200.

The following history was obtained. He arrived at Harkness towards the middle of April looking rather well, but passed up for about ten days on order to keep his job until he suddenly collapsed upon the afternoon of April 22 and was admitted to hospital. His general condition was very poor.

In view of the nature of the symptoms a laparotomy was performed. The appendix and lower end of the ileum were found to be slightly congested. There was no other evidence of gross lesions. The appendix was removed and a small rubber tube fastened in the incision for drainage of the bowel. The wound was then closed and patient returned to bed. Treatment was by means of intravenous saline and glucose and small and small doses for the next few days. After a while some more gross inflammation of the same character and repeated the following morning. He was moved to Fowler's position.

skilled down and remained normal till May 25. I also kept 70. The blood returned positive again that date. Unemployment was good and profits had started up to his own home on June 1, 1931.

These figures show attendance in school periods —

April 20	11,000	50.00			
May 1	10,000	50.00			
2	11,000	50.00			
3	10,000	50.00			
4	10,000	50.00			
5	10,000	50.00			
6	10,000	50.00			
7	10,000	50.00			
8	10,000	50.00			
9	10,000	50.00			
10	10,000	50.00			
11	10,000	50.00			
12	10,000	50.00			
13	10,000	50.00			
14	10,000	50.00			
15	10,000	50.00			
16	10,000	50.00			
17	10,000	50.00			
18	10,000	50.00			
19	10,000	50.00			
20	10,000	50.00			
21	10,000	50.00			
22	10,000	50.00			
23	10,000	50.00			
24	10,000	50.00			
25	10,000	50.00			
26	10,000	50.00			
27	10,000	50.00			
28	10,000	50.00			
29	10,000	50.00			
30	10,000	50.00			
31	10,000	50.00			

Particulars regarding disease —

First Fever — A mild and well kept young man. Had been vaccinated in February, 1929, with T & D vaccine obtained from Royal Naval Hospital, Hong Kong. He had no rise in temperature or local symptoms following the inoculation. He was vaccinated with vaccine obtained from the P.H.U. Hongkong only in April 1931 and followed by 1.5 cc two days later. This vaccine was of very recent make and he, in common with all others and even who were vaccinated at the same time, had a very severe reaction — temperature 104° F., severe headache and nausea accompanied by severe local reaction and swelling from effect of inoculation.

Second — A mild and well kept young man. Had been vaccinated in the same manner. He subsequently had a surge of local reaction, in a large swelling above the inoculation. Vaccine therapy rapidly cleared these and symptoms of the disease.

Third Fever — A mild and well kept young man. Had been vaccinated in February, 1929, and March, 1931, with vaccine obtained from Royal Naval Hospital, Hong Kong. He reported no reaction after either inoculation and after receiving 100 cc of blood remained perfectly fit and well.

The General Officer supplying the T & D vaccine at Hong Kong, commented that it is a serious mistake to suppose that vaccination might possibly be due to the fact that the vaccine used was young and are always obtainable from persons suffering from typical fever, whose vaccine obtained in England is not often obtained from other sources. The vaccine was commented on —

1 vaccine	100,000,000
2 vaccine	100,000,000
3 vaccine	100,000,000

I wish to express my thanks to the A. D. Stewart, M.D. DPH, DTH, A.H., at Shanghai, for permission to publish details of this case.

There was a large mass in the left side, which was tender on palpation. It extended a hand's breadth below the costal margin, the percussion note was resonant over it. It gave the impression of a filling tumor. White cell count 15,440. Urine negative. Bowel sounds were suppressed with an increased red blood cell.

Urine of 1000 cc.

Blood count was 45 mg. per 100 c.c. of whole blood, and area chromatin test was 48.72 per cent of normal leucocytes.

Roentgen rays showed no opacity in the left hemi-thorax and two small opacities in the left side opposite the 10th and 11th ribs.



FIG. 1. Large filling tumor in the left hemi-thorax.

Diagnosis showed no evidence of metastasis to other organs, and a slight pulse was palpable on the 12th.

No breath being obtained on chest it was found to be a filling tumor and roentgenography. The bladder was not differentiated and no other surface was seen.

Both catheters passed up the rectum easily. On 10/20/21 the left catheter was pulled about 50 c.c. of blood and the catheter was removed with immediate onset of pain which on palpation of the rectum proved up to the tumor was exposed, and it was moderately enlarged.

Recovery from the operation was uneventful and by September 10, 1935, patient was passing 75 cc. of fluid in 24 hours, a day.

The blood count was 10 mg. per 100 cc. of whole blood, and hemoglobin was 75.15 per cent of normal function.

Pathological Report September 7th, 1935 — Left larynx, which is greatly enlarged, 14 by 10 in length, grossly firm (is) in wall, weight 260 gms.

The general shape of the organ is preserved.

Preparing from the sections and studied throughout the substance of the larynx are numerous cystic spaces varying in size from some which are just visible to the naked eye up to those as large as a hen's egg or slightly larger. They are lined by a layer of simple cuboidal epithelium and their contents is a



Fig. 1. Enlarged larynx, removed, 200 gms.

fluid varying in colour, yellowish. The wall of the reddish brown, derived from the presence of a blood filled plexus.

The fluid of some of these cysts contains a mass of mucus.

Microscopically on the wall of a cyst, 2 mm. in size, between the cysts but macroscopically none could be seen detached and discarded around them.

Diagnosis — Congenital polycystic larynx.

In almost all cases of this disease, which is slowly progressive, both cysts are affected though sometimes only to a smaller degree.

There have been reports for the rarity of the condition of vocal cord disease in a polycystic larynx.

From the x-ray findings the right side of vocal cord appears to be polycystic and the disease progresses.

AN UNUSUAL CASE OF HEMIPLEGIA

L. S. KINGS, M.D., AND C. D. KENNEDY, M.D.

The patient was a Chinese, aged 57, a native of Singapore. He was married, an R. L. & was born when first-born.

Stroke — He had been an epileptic sufferer for twenty years. Several years ago he had apoplexy, but the details of treatment of any one seizure have been forgotten.

Days were generally he was used to have food sent him. There was nothing before the house, which showed up with eyes and a small feet. (In view of the condition of his heart I do not repeat the diagnosis of heart disease established.)

He had been employed from time to time as a porter.

Three weeks previously while at Shenton at the Prince of Wales, he woke up with his left arm and leg paralyzed, also muscular atrophy on a sprain diagnosed before. He was kept in a dorsal position and was raised by putting cold water over him, which caused him to say "I am cold." His arms displayed very splenic. His pupils were enlarged to his surprise. He was sent to hospital at Shenton and was confined on board the same day with a diagnosis of sprain poisoning.

He was then sent by the same on October 4, 1905. On examination he was anemic and in the neighborhood and took very little interest in the surroundings.

Examination proved very difficult because the patient could not speak English and it is doubtful whether he thoroughly understood any questions put to him. At any rate, it was with the greatest difficulty that he could be persuaded to cooperate in an examination and to never complained of any symptoms.

Eyes: Pupils equal and round, rather small reacted sluggishly to light and normally to accommodation. Movements normal.

Mouth: Adenoid hypertrophy, tongue coated. Throat normal. No other lesions noticed. Patient's reflex and postures of tongue normal.

Cervical nerves: Weakness of left VII extending towards others was no sensitivity.

Lymphatic system: Enlargement of nodes in submandibular region, apophyseal. Distal. Apex last 50 years in submandibular region. Darker shadows not noticed in the right. Impulse diffuse. Smooth. There was a local systemic support to the spot suggested by the radio and another red double system of the entire base, the latter being localized down the right side of the sternum. Pulse regular and normal in type.

Lungs: No abnormality.

Abdomen: Refluxes present on right, absent on left. No glottis or larynx seen. Liver, spleen and kidneys not palpable.

Genitourinary system: Poorly developed generally, with very marked swelling of the left testis and leg to which no voluntary movement could be obtained.

C. S. F. reflexes: Feet jerk out when cut.

	Right	Left
arms		
Deltoid	+	++
Triceps	+	++
Brachioradialis	+	++
abdomen	+	—
Legs		
Iliotibial band	+	—
Soleus	+	—
Plantar	Present	Present

Sensation: Anesthesia to touch, pain, heat and deep pressure on the left side.

If this stage has continued with head was not recognized and as signs of not known as given rise to this stage, he was treated as a case of cerebral thrombosis, probably apoplexy in origin. Though this would not explain the contradictory

CASE FOR DISCUSSION

J. H. TAYLOR, M.D., F. R. C. P. (LOND.)

Exon, N. J., 20 years.

Communicable—Malaria.

History.—Up to the 1920 Communicable, 1925, malaria attack. (J. H. Taylor—Patient began to suffer from left temporal headache about the beginning of May 1935. His work—loggers—on and off and those subject to the pain. No return of sweating, but the left temporal region "felt dead" with pain, and he had paroxysms of shivers from left neck. On June 25, 1935, the headache became much worse and he had double vision. On June 30 he was called a malaria patient, who was attended for his admission to R. H. Hospital, Portland.

On admission he complained only of headache, which was worse on nights and of double vision.

Examination.—General nervous system. Intelligent, answered questions well and quickly, no impairment of speech.

General notes: 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 149th, 150th, 151st, 152nd, 153rd, 154th, 155th, 156th, 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July 22. White cell count 18,750 per c. mm. (normal 5,000). A few more bands than normal, 12 per cent. polymorphs, 70 per cent. lymphocytes. 12 per cent. mononuclears. 2 per cent. eosinophils. 2 per cent.

Blind. No intestinal parasites found.

Ureter. No pathological changes.

July 24. Similar pictures. Cloacal fluid made slight difference made to ureters. 3 cells per c. mm. total proteins, 2.00 per cent. Nuclei 4.16. Squamous. Mononuclears, eosinophils, polymorphs, mononuclears, 2 per cent.

A very chronic. Right breast tumor, left breast and left testis are also. Left breast tumor and uterus. May be chronic. Splenomegaly is not satisfactory argument could not remain stationary at that point. Both times in about the mid of the body. Clitoral process is due and also and lesions? normal.

Opportunity report July 22. Fluid appear normal. no evidence of papillary carcinoma. Fields of tumor... normal.

Blind uterus. No growth.

On July 24. Inspecting right were small nodules. upon these showed no papillary carcinoma. patient remained generally clear but general deterioration in natural growth became shown and difficulty in opening his mouth wide. Discomforts by 12.5. 1. Splenomegaly revealed no definite signs of disease in organs and tissues and no suggestion of prevalence of process of the right testis.

Blind were 20 mg. per 100 c. mm. of white blood.

Ureter. Right ureter of albinism and no abnormal granular mass.

On July 24. R. N. T. Splenomegaly reported enlargement of the right side of the patient and a soft nodule slightly red and swelling of the side wall of the pharynx. on the right. not definitely visible but associated with a slight tenderness of the follicles of the right side of the mouth behind upper and of right sternal margin and these histology of reaction of the liver to the left.

Very of normal reaction showed no abnormality.

There was definite tenderness and hyperemia of a very great parietal breast report, and various operations the effect to the patient. In view of histology histology signs he did not show explanation.

On August 2. Upon these showed no papillary carcinoma. patient becoming more debilitated. White cell count showed further increase to polymorphs. The latter in proportion of 55 per cent. total eosinophils. Tumor revealed more during the night.

August 7. There is some burning of tongue of left side, especially on longitudinal side but no lesion in papillary carcinoma.

August 12. Complaint of severe headache which is mostly central and frontal. The headache is dull and terrible. some tenderness over left, frontal and left side of neck. Temperature 101, pulse 120, respiration 20.

Upon in June then appeared torpid, stupor on upper and lower lips. also left side of nose. Tongue very hard and denuded in right. breast obvious.

Clitoral. Laminated.

Cardiac. After system. No gross lesion present. blood pressure 120/80.

Large central. Adenoma normal.

Central nervous system. Mental present average intelligence, not intelligent. Speech starting. Upon moderate's showed, upon central areas in left and anterior. No symptoms. patient felt like paralysis left extremities. tongue deviated to the right as postures.

Mouth system. General malnutrition showing general loss of power, no paralysis of limbs. slight rigidity of neck present.

Superficial reflexes all present. Kneejerk and anklejerk present and brisk. Hypoactive and abdominal reflexes. Pinprick present. Pinprick responses left, absent, right sharp. No nociceptive. Hypertension over upper and left side of neck. Burning signs present on left side.

Clinical Notes

The possibility of both temporary sphenoidal changes was now suggested and a decision was reached in favor of the second portion of the foregoing.

On August 1, which coincides in type as showed bulging behind the nostrils, and on the next day a more marked swelling occurred. It was noted that it was only local swelling.

On 5-1. Operations reported August 15. Left nostril local swelling increased. Some additional anæsthesia, bulging.

Swelling passing through tympanum toward back of meatus. Then thick local pus appeared. The signs of sphenoidal expansion, as indicated from signs of signs of signs of signs.

Then, appears to be a local extension of the early stage and behind the left sphenoidal process. Although there is no direct evidence of sphenoidal expansion the local swelling nature of the pus from the tympanum suggests changes within nostril, probably at base, and I think the sphenoidal process is expanded, with extension of the operation to sphenoid the base.

August 15. Operations performed. — Then over left sphenoidal process removed from the nostril. Then immediately toward the nostril was soft and anæsthetic on the base. The sphenoidal plate of bone was dense and very hard. Some removal above the nostril regarding the base of the middle bone and externally over sphenoidal plate. There appeared several in nostril, pulsation, and a little under process. The base was raised and bulging just as the sphenoid the temporary sphenoidal plate is dense diagnosis. The sphenoid bone, posterior sphenoid between plate and no further expansion attempted.

August 15. Patient had a somewhat severe during the night with delirium. He gradually became worse and died suddenly on the morning of August 17.

Post mortem Findings.—Changes of bone. The changes involving the greater portion of the left frontal bone and those involving the upper part of the right parietal were almost sphenoidal expansion. A small collection of pus was found on the upper surface of the middle bone on the right side.

The sphenoidal process was found to be full of pus and the tympanum showed extensive local swelling. A retro-pharyngeal abscess which had started down from the sphenoidal process was present on the left side.

On lower end of base.—Death was due to sphenoidal expansion and retro-pharyngeal abscess following sphenoidal expansion and base sphenoidal expansion.

Discussion.—The difficulty of locating the exact origin of the sphenoidal condition can be seen from the foregoing account. The only report really stated that "sphenoid, this not satisfactory to patient could not move it to that point as it is shown that patient must have been suffering from chronic sphenoidal expansion from pus from process to the base of parietal. It is interesting to note that the basethal bone was at right, pointing to base extension and the swelling of the sphenoid. As a retro-pharyngeal space and penetrated through parietal portion of left temporal bone.

The disease of definite localizing signs made an sphenoidal decompression impossible.

Reviews.

First Graduate Surgery Series. Edited by Sydney Morgan, F.R.C.S. Eng. The volumes with an index in each volume. Serials five about 1,000 pages and 1,000 diagrams per volume. Vols 1 & 2 (4 in Vol III (which ready) 42 in London Medical Publications Ltd., 38, St. Vincent Street.

First Graduate Surgery series, comprehensively the whole field of surgery. The volumes nearly fifty in number, are representative of the best in the country.

The books give detailed descriptions of modern operations, methods of investigation and approved systems of therapy, which it would be impossible to do in any one periodical, although published.

One of the main features of First Graduate Surgery is a systematic up to date description, describing pathological changes and the ethical and steps of operations, many of the plates being drawn from actual operations.

The new book which is constantly revised will give to the "Fellowship Candidates" that full and detailed information as to techniques for operations, pre-operative preparation, post-operative care of the patient and proper choice of operative procedures, which he would find difficulty in finding elsewhere.

The work should prove most helpful to the First Graduate Series. Hamilton College of Health & Hygiene, Fellowship Candidates and Medical Officers of the Institute and also the General Practitioner, who may be called upon to undertake major cases & operations.

Other features of repeated interest to the General Practitioner included in the book are details of minor surgery, operations, surgery, laboratory and clinical methods of diagnosis, & comparative results of treatment and a description of the technique of all necessary operations.

The Treatment of Venereal Disease in General Practice. By Thomas David Davies, M.D. M.R.C.P. (Lond.) Director L.C.C. White Chapel Clinic N. Cerebral Venereologist in the London County Council. Lecturer in Venereal Diseases, London Hospital Medical College, D. Lect. Medical Officer in Charge of Venereal Diseases Department, St. Thomas' Hospital, S.E. First Edition, published 1940. London John Pals Sons, Duncton, Ltd., 34 St. Great Portland Street W.1. Pp. 200 with 5 plates. Price 5s. 6d.

Mr. David Davies states in the preface to his book, that only a few statements of the principles of therapeutic venereology is given. Nevertheless it contains many and deep of great help to the non-specialist doctor trying to do the best for his patient, as well as to think, he stresses many points in regard to treatment which are not generally appreciated, and points out a number of facts not well known, or understood—(mercuric sulphate, mercuric iodine (S.S.D.) is just as effective internally and externally as the more common mercuric iodine (S.S.D.) is given internally, and has a more pronounced therapeutic effect than it is usually known to be. He gives facts and figures which support his views with which suggests that treatment can be by utilizing the reaction of the tissue rather than by directly destroying the *treponema*. The modern venereology is to overcome the therapeutic effect of mercuric iodine and to substitute the therapeutic effect of mercuric iodine and mercuric iodine.

A review of the various treatments, as used in the venereology effect is shown, and he shows that systems of treatment should be given at not more than five days intervals going to the rate of treatment. It is a trouble to give a full

many practitioners, including the body, as becoming well-adjusted to the drug and the symptoms as being overcome.

We have to bring now to a close the treatment of gonorrhoea and its sequelae. It is generally held there has been the treatment and observation of a case of gonorrhoea should last at least six months and even longer, if any of the tests of cure are unsatisfactory.

The reader is satisfactory, but although sometimes medicines such as opium, chloroform, ether, and hypodermic are given, such is merely mentioned as a convenience and no treatment is described.

Let us now look for a single medical library.

THE MEDICAL TREATMENT OF GONORRHOEA AND ITS SEQUELAE. By F. H. MICHENER, F.R.C.S. Pp. x + 69 with 18 plates. Size $3\frac{1}{4} \times 8\frac{1}{2}$. London: Baillière, Tindall & Cox. Price 1s.

There is a most useful and practical book and should appeal to the Student, Nurse, Medical Practitioner, General Worker and especially to the Surgeon.

To say the medical man has to be prepared to treat not only the numerous varieties of gonorrhoea and its sequelae, but also those due to electrolytic, genital, and other ails and medical aid. All these are described separately and treatment recommended for each case.

The first chapter is a consideration of the system leading to gonorrhoea and deals with the general principles of how to prevent and combat them. The author also gives a detailed description of the various causes and treatment of gonorrhoea, and states that the treatment has reduced the high mortality to a very small figure.

The last chapter deals with the other ails to which gonorrhoea and may be advantageously put, and also details a suggested diet and milk. We thoroughly recommend this small monograph and feel confident that it should have a place in every medical office library.

DIAGNOSIS OF GONORRHOEA. By ALAN C. BUCKE, M.A., M.D., M.Ch.Ox., F.R.C.S., Assistant Clinical Lecturer, St. George's Hospital, Consulting Urologist, London County Council, &c. With 2 coloured plates and 10 figures. Demy 8vo. pp. 255. London: H. K. Lewis & Co. Ltd. Price 12s. 6d. net.

This beautifully produced book is a recent addition to the Gonorrhoea Series. With the exception of acute proctitis, such as medical men, nurses and a few other details of operative treatment are omitted and no other details of history and development which are usually included in a case of gonorrhoea. It is placed in two parts. Part I. Mr. Bucke does not believe in deriving a lot of space to well recognized subjects like acute gonorrhoea and acute proctitis which are fully described in other works. The book, therefore, is not comprehensive and is of an essentially practical nature, the underlying largely by the experience of his own hospital work from his own clinical practice. There is no detailed consideration of the investigation of a Urinary Tract followed by a description of Urinary Symptoms. Therefore the various parts of the post-operative system are dealt with under separate headings. The book concludes with a chapter on Gonorrhoea in the Urinary Tract and a chapter on the History of the Gonorrhoea which are apparently often mistaken for acute gonorrhoea and are, therefore, not so important as they were formerly thought to be. The author gives a interesting chapter on Cytopathology and the acute inflammation of the testis. Mr. Bucke strongly advocates the employment of the gonorrhoea by general practitioners

Intestinal Absorption.—The next thing paper which stresses the necessity for open air digestion and a definite sentence of observation of mental distress, does not like the egg to sit physical and pass to be employed. The last twenty-two pages are devoted to a description of some of the results of treatment, and some of the results are appended.

The book is easy to read and the print is large and clear. The author is to be commended for putting his case clearly and unambiguously, and rightly emphasizing the importance of the importance of the treatment by himself, when some of the most important subjects are brought to the attention of the

Medical and Physiological Literature. By Mrs. W. Stewart Dorr, A.B.C. Director of the Chemical Laboratories of the Royal Institute of Public Health, London, and Public Analyst for the Metropolitan Boroughs of Islington and Finsbury. Third Edition, 1906. London, John Bale, Sons & Desborough, Ltd. 35 36 Great Smithfield Street W.C. 1. Pp. xiv + 125, with 2 plates and 17 illustrations. Price 7s. 6d.

This second edition is a revision of the first book, which for I.P.H. students will be read, and a knowledge of the principles.

Though primarily intended as a practical handbook, its value is enhanced by the many facts which are stated in the chapters on food and water and by the summary of the more important literature of the time and other reports of the author. It is the author's aim to have the book as a reference work, and it is to be hoped that it will be a valuable addition to the library of every student of medicine.

There are many in the book which are of interest and importance to the student and to the public, and it is to be hoped that the I.P.H. students will do well to read it.

The book should prove of value not only to the I.P.H. student but to all those concerned in practical public health matters.

Constitution of the Human System. By Dr. W. Stewart Dorr, A.B.C. Director of the Chemical Laboratories of the Royal Institute of Public Health, London, and Public Analyst for the Metropolitan Boroughs of Islington and Finsbury. Third Edition, 1906. London, John Bale, Sons & Desborough, Ltd. Pp. 25. Price 7s. 6d.

Up to the present all the permanent facts regarding human anatomy and the chemical composition of the body have been in the hands of the student and the public alike, and it is to be hoped that the I.P.H. students will do well to read it.

The book is a valuable addition to the library of every student of medicine, and it is to be hoped that the I.P.H. students will do well to read it. The book is a valuable addition to the library of every student of medicine, and it is to be hoped that the I.P.H. students will do well to read it.

The author has not made it quite clear in the case of the constitution of the human system (p. 25, para. 10 and p. 26, para. 11) that the body is to be read in the best sense of the word, and that the body is to be read in the best sense of the word, and that the body is to be read in the best sense of the word.

even of spinal. Page 62, para. 10 should have a sentence added that compresses for the thoracic and large joint lesions should be provided for the maintenance of constant pressure. The various compresses are fully described with great practical notes as to how to fit, wear and test the efficiency of any particular appliance.

In conclusion this book may be said to be extremely useful to the busy well qualified man, to fill a gap in the present literature on the subject, such as, "nothing, but no scientific methods to be used in any case."

Recent Advances in Osteomyelitis Disease. By PETER ROSE DUNSTON, M.D. Former Assistant Physician in charge of the Orthopaedic Department, Lambeth Hospital, Farnham, Essex. Pp. 110 + 10. London: Baillière Tindall & Cox. Price 5s.

An extensive bibliography at the end of this book includes not only English references, but also in detail 1926. This may be taken to indicate that medical bibliography is still much neglected in this country and is a pointer in the hope of something better to be put forward as opposed to traditional methods of treatment in osteomyelitis disease that this book has been written. As an introduction to the subject of osteomyelitis the book is adequate and has the additional merit of being easy to read. The more serious reader may, however, lament that, except, evidence has been furnished to justify all this. There are no case reports, no statistics, and no detailed analysis of the various kind of Report, while only a very general picture of the treatment is given. Such general terms as rest, radiation, hygiene, are frequently used. The mechanism of the nature for the treatment is explained in general but the book reads somewhat as an abstract from the text. In a book of this character details of symptoms, signs and some criticism of the work of treatment would not be out of place and would add something to its practical value.

News of the Service.

ADMIRALTY ORDERS

1926—Seagoing Ships—Hospital

(S. 1926—1926—1926)

In the event of emergency, the following instructions are to be observed when the vessel is at sea and is in the event of a disaster. It is to be possible to supply it with the necessary medical supplies, and to be able to supply it with the necessary medical supplies.

It is to be possible to supply it with the necessary medical supplies.

1926—Fleet—Hospital—Hospital—Hospital—Hospital

(S. 1926—1926—1926)

It is to be possible to supply it with the necessary medical supplies. It is to be possible to supply it with the necessary medical supplies.

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Abstract

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STUDY 1: EFFECTS OF A 10-DAY INTERVENTION ON DEPRESSION

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[illegible][illegible]

Keywords: *Perceptual-motor skills; motor development; children*

[illegible]

Name of Contributor: Title: Address:
 City: State: Zip:
 Country:

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Keywords: *Exposure assessment; Health status; Health care; Health care utilization; Health care costs; Health care quality; Health care access; Health care equity; Health care disparities; Health care needs; Health care resources; Health care delivery; Health care financing; Health care policy; Health care reform; Health care innovation; Health care research; Health care education; Health care workforce; Health care leadership; Health care governance; Health care accountability; Health care transparency; Health care trust; Health care engagement; Health care participation; Health care empowerment; Health care self-management; Health care decision-making; Health care communication; Health care collaboration; Health care partnership; Health care coalition; Health care network; Health care system; Health care organization; Health care management; Health care practice; Health care intervention; Health care program; Health care service; Health care product; Health care technology; Health care innovation; Health care research; Health care education; Health care workforce; Health care leadership; Health care governance; Health care accountability; Health care transparency; Health care trust; Health care engagement; Health care participation; Health care empowerment; Health care self-management; Health care decision-making; Health care communication; Health care collaboration; Health care partnership; Health care coalition; Health care network; Health care system; Health care organization; Health care management; Health care practice; Health care intervention; Health care program; Health care service; Health care product; Health care technology.*

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Wang, J. and J. G. Thompson. 1993. Methods for Estimating the Number of Species in a Community. *Ecological Monographs* 63: 445-460.

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The following information is provided for your information only. It is not intended to be a substitute for professional advice. Please consult your physician or other healthcare provider for more information.

1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.

It is not clear how the authors justify their use of the term "cognitive" in the title of their paper. The authors state that the study was designed to "investigate the effects of cognitive training on the performance of a complex task." However, the study did not include any measures of cognitive function, such as memory, attention, or problem-solving. The authors also state that the study was designed to "investigate the effects of cognitive training on the performance of a complex task." However, the study did not include any measures of cognitive function, such as memory, attention, or problem-solving.

There is a large number of different types of plants and animals in the world. Some of the most common are the ones that we see every day. They are the ones that we use for food and for clothing. They are the ones that we use for medicine and for many other things. They are the ones that we use for everything. They are the ones that we use for everything.

only to do this to our detriment (and, indeed, possibly loss of support) and to our value system. There is, evidently, no time to do this sort of research either. Thus, we conclude, it is not time to do it, but it is time to do it.

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Notices.

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Journal
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Original Articles.

**ON THE BIOLOGICAL APPROACH TO THE STUDY OF
HOMO ERECTUS¹**

BY GORDON HUGH SPENCER, F.R.S., AND
ERIC S. SUTHERLAND

Ergonomics, being the study, reaction of, both to certain types of particular situations are essentially biological phenomena. The dispassionate contemplation of human disease is merely the mirroring of that essential Homo sapiens with its particular anatomic, environment and the other living organism which enables that environment is psychologically impossible. The student of Homo sapiens, being, Homo sapiens cannot but help taking up an anthropometric attitude towards mechanism for the sake of the fact. For these reasons the use of the word "fact" when discussing the biology of human groups is most aptly as complementing the fundamental mechanism between a collection of their subordinates in nature. I felt sorry therefore that Greenwood (1934) in his scholarly and authoritative book "Ergonomics and Social Science" had described "fact" as being of "erect" in the discussion of human ergonomics. Although in many instances it may indeed prove to be essential to merely rely observation to place one on the same plane as other animals, yet, when examining these physiological reactions of Homo to his organs, and ergonomic surroundings over which he can exercise an intelligent control the employment of the same terms as are commonly confined to other organisms helps to keep in mind the fact that ergonomics and medical biology can be worked with advantage as a branch of pure or scientific biology. In saying this there is no intention of minimizing the importance of historical research in ergonomics.

¹ Republished from *The First Days of the Royal Naval Medical Service*, Volume 20, p. 1 (1934, 2nd ed., p. 1) by kind permission of the Director, R.N.M.S.

Summary

The great picture of knowledge as a set pattern of events in this world and in Nature has been widely reconstructed by the great success of the experimental method in natural (biological) physical phenomena. But a useful "epistemological" illustration is not a comparison of sequences of events, events *per se*, or even all natural factors as at work, is the essential development of laboratory experiments. In human epistemology the experimental method is limited in its application, and *per se* observation remains the chief source of investigation, although such procedures as were listed listing them, working, and measurement, can be treated as being less experiments on human beings. The existence of analogy with the results of experimenting with nonhuman beings has also added to our knowledge of human epistemology, as is illustrated by the continuous systematic studies of man and animals by Torgley, O'Connell, and others.

There is a tendency in some quarters to be impatient of any method other than the experimental. But John W. Thorndike (1904) warning against too neglecting a truth in the value of experiments. Although himself one of the most brilliant and successful exponents of the experimental method, Thorndike says: —

The experimental method of man can be but many relations get between it and the whole, a of which find some way of putting the frequent, regularly repeated for experimental purposes back into the whole. The comparative method is frequently in the position of being the generalization of which have experimental procedures and by using the *ex post facto* have starting a way into the goal which is the understanding of nature.

Intellectually then the preference to go up to the, rather than to discover something, is especially useful which distinguishes the scientific from the practical student of science.

NATURAL SELECTION AND VARIATION

If the fundamental hypothesis of biology is that the species, variation, and race, of every organism which we see around us arose from more or less remote common ancestors by means of the natural selection of those hereditary biological variations in a species which were most fitted to survive when the pressure of the environment was great enough to cause a struggle for existence between the individuals of the same species and the members of other species in the environment. Some philosophical biologists do not think that this hypothesis adequately describes all the phenomena of evolution, but to my mind the theory of natural selection has been placed in an unpropitious position by Fisher and Haldane's and Huxford's analyses of variance and probable inheritance (Mendelian). After examining other hypotheses, Fisher (1918) states: —

The sole surviving theory is that of natural selection and it would appear impossible to avoid the conclusion that if any evolutionary phenomenon appears to be incompatible to this theory it must be accepted at present as one of the facts which in the present state of knowledge remain unexplainable.

If Fisher's conclusion is accepted, it is an *a priori* matter that any hypothesis pretending to describe biological phenomena, such as the origin and behavior of populations, must be in accord with the principle of natural selection or be discarded as false.

The manner in which natural selection works in hereditary determinants varies, and, with a few exceptions which need not concern us, are caused by sudden changes in one of the hereditary units or genes, i. e. by gene-mutations. I have no intention of wasting time in discussing the Mendelian mechanism of inheritance, or the space problem. Suffice it to say here that the hereditary characters which distinguish species, varieties, races, stocks, and individuals are predetermined in the nucleus of the fertilized ovum by the type and arrangement of paired sets of genes. While the presence of a hereditary character may depend on the presence or absence of a special gene or genes, yet that character when present may be affected or modified by many of the other genes present in the same nucleus. In fact, each member character of an individual depends to some extent on the entire genetic pattern in the nucleus, i. e. on the whole genotype.

The hereditary variation or natural immunity to disease appears to be so variable among members and races of the same species that the degree of natural resistance to germs instantly varies in many different genes. The genetic variations in the average resistance to disease, which may be exhibited by two or more groups of animals have to be distinguished from those variations in immunity which have been acquired in the groups by differences in their environments or past inherited experience. This latter type of immunity is acquired and, without hesitating about New Laws and other barriers, for our purposes Weinman's degree will be accepted, namely that acquired characters including acquired specific immunity, are never inherited in multicellular sexual animals. Here it is necessary to emphasize a point which is often a cause of misunderstanding. While acquired immunity is not directly inherited, the probability of acquiring immunity is the normal measurement is inherited in varying degrees, that is to say, prearranging in a variable genetic character. In this respect the variation in response to the injection of diphtheria prophylaxis is most striking; the one subject will respond within a week to a minimal dose of prophylaxis; while the production of a high concentration of antibodies in his blood while other refractory subjects may require courses of inoculations extending over six years before they develop an appreciable quantity of antibody activity. Original genetic immuno-inhibitory must also be recognized by persons (hered or suggestive experience) because subjects, who are known to have produced specific antibodies in their blood some time in the past but have since then, on making a fresh contact with the corresponding bacteria or viruses will reproduce antibody in greater quantity and more rapidly than on the first occasion. These facts are the ones with which a subject requires immunity or exposure to a

genetic control of nature is the product of his genetic and acquired characteristics, that is his heritage and environment. The derivation or transmission of specific acquired immunity is also a characteristic of modern-day epigenetics. In practical immunology and modern epidemiology, Twiss (1961), Lefsky, May, and O'Brien (1964) work shows that the acquired "hered" immunity is a variable genetic character which can be acquired in specific stimulation. Thus, durability of immunity is characteristically like the transmissibility, can be partly natural and partly acquired.

There is a variance which is observed in individual susceptibility and even more so, infectious disease, variation in attacking differences in the individuals; or the average susceptibility of two or more groups, to maintain a fixed variance.

The famous observation that adults are more immune than children to diphtheria infection demands apart from their having acquired immunity to it, a fixed attack, was considered, and still is by many to be a physiological or developmental phenomenon. Of recent years, however, it is generally accepted that much of the adult herd immunity may have been acquired by earlier subclinical or unrecognized infection during childhood. This is the latent endotoxin hypothesis which maintains that the so-called natural specific antibodies which are found in the blood sera of humans and other animals are the result of unrecognized infection associated with the homologous specific bacteria or viruses. This theory is vigorously sustained by some authorities who consider such natural antibodies—the most studied of which is of course diphtheria antitoxin—appears in the circulation as a normal process of growth—a byproduct of the virus. This is the Bering hypothesis of the Germans, which maintains that diphtheria antitoxin and other natural antibodies are purely hereditary developmental characters independent of environmental stimuli. I am a personal witness to this controversy, but to my mind, with a few exceptions such as natural sheep hemorrhage, the appearance of specific antibodies at various ages is much more likely to be due to latent immunization. The evidence in the case of diphtheria antitoxin is overwhelmingly in favor of the latent endotoxin theory. Also the assumption that every individual should load up serum with a host of antibodies which is very never requires is in as harmony with the biogenetic principles we have been discussing than a hereditary objective function like the sick person's wholly reaction, which secures the natural protection against any particular bacterial or other poison it may meet in its passage through life. But the very fact that there is then dispute as to whether natural hereditary immunity is observed or acquired shows how impossible it is to be certain of such characters are wholly hereditary, wholly acquired or are a mixture of inheritance and environment.

Yet again the comparison of herd immunity, which is to be completed in the process of passive immunity due to acquired natural antibodies,

person's own sense of comfort or the phenomena in itself. This is an adaptation to the environment, which means that the person will have (and probably spend) dissimilar ideas of what is hot or cold or an irritant or non-irritant in his own way of life or in his own skin.

It is generally believed that the black races of the world have a greater hard-resistance to diphtheria than white races. Tarbock (1934) has produced suggestive evidence that Negroes on the average have a higher percent diphtheria immunoactivity than Europeans. The actual proportion is less marked in New Zealand than anywhere else in the world than Tarbock was able to compare the Negro and frequency of group (1934) children with quarter half three quarter, and pure blood of Negro children who attended the same schools. The Negro herd immunities were found to be directly associated with the amount of Maltz blood in the group being, highest in the pure black and lowest in the pure white children. The mixed herds showed intermediate degrees of herd immunity. In this absence of further data the historical overrepresentation of white ages that have winter the blood the same protected the life of the child, and thus the observed grading of Negro immunity was therefore only another result of variation in the intensity of latent immunization. The Tarbock study had tested the same samples of children against typhoid antigens and tuberculin. The reaction to these antigens showed no significant association with the concentration of Maltz blood. The obvious inference from Tarbock's series of skin test investigations is that there was no significant difference in the risk of infection by tubercle bacilli or salmonella typhi, the groups of varying race, which in turn makes it improbable that there could have been much difference in the risk of exposure to diphtheria by this or groups of children attending the same schools. Hence the observed difference in Negro herd immunity was at this instance more probably due to racial genetic differences in immunopositivity than to racial differences in social contacts. On the other hand, Black (1934) made a careful analysis of the comparative statistics of the diphtheria mortality the Negro community and the diphtheria mortality rate in the blood of Negroes and Europeans living in the United States. The total mortality of the whites was a little higher than that of the Negroes, but the mortality among the blacks was greater than that among the whites in the first period of life and again in late adult life. The Negro test frequencies by age groups were gradually the same in both races. The subjects were on the whole a little easier to immunize and there was some tendency for Negroes to develop a higher maximum content in their blood. Considering the reciprocal increase of Negro immunity with age and the absence of reports of clinical diphtheria among natives in Africa, the validity of Black's demonstration any striking differences in the susceptibility of American Negroes and European Americans to diphtheria is questionable.

The epidemiologist is in the same boat with the engineer and social worker who are for ever harassed by the question "Which is the more

important factor in determining, perhaps not solely for *Natura* or *Nature*. In light of the above, it is not surprising that a limited recognition of *Natura* is probably the most important influence in determining the whole characterisation of these organs and of their functions (Fig. 10). These organs are a result of plastic expansion of primitive morphology and quite apart from the unique intellectual characterisation, but specific protoplasmic or highly miscible. Plasmic segments are adaptable to a wide range of environments. Hence their local character and form are largely dependent on what special environments and influences they have been subjected to during their development from ovum to maturity, and in plastic nature therefore *Natura* is as important as *Nature*. The highly specialised segment is like a rigid steel bar which only for one inch within the plastic organism is like a lump of putty which slowly takes the support of any surface on which it chances to rest.

PERMANENT VARIATION

So far the discussion has been mainly concerned with variability of host environment. It is now time to say a few words about parasite variation. When I was a medical student there was the streptococcus, the diphtheria bacillus, the typhoid bacillus and a dozen or more organisms which were regarded as if they were irreversible and immutable species. Alas! that happy day has passed and the picture has completely changed. Each named species of bacterium consists of a complex group of various types, strains and virules of more or less permanency. The streptococcus has been divided by the authorising spleen of spores into about 150 named varieties, while another species almost dead in the bacteriological press in which the authors usually refer to each organism pair as to a Type XVII streptococcus or the *Cordell* automata. Although some of these variants were stable others are probably very transitory. Types I, II, and III pneumococcus appear remarkably constant, while on the other hand it is impossible to-day to select all strains of pneumococcus to one of the three independent groups into which they fall so easily during the War. There can be no doubt that at some time, recent or remote, these groups, types and strains had a common ancestor. Dixon Wright's (1931 and 1933) painstaking micrograph analysis of the culture and subculture bacteria, in which he shows that the same strains may be present in several sharply differentiated strains of their organisms, is recognition of their evolutionary history, while Os Oshie (1935) and Karmali (1935) have independently succeeded in transforming a Type I into a Type II pneumococcus.

Pilcher (1934) has underlined the fact that certain bacteria will develop new characters in a new environment. For instance the presence of a foreign substance in the culture media may call forth the corresponding response in the protoplasm of the bacterial cell. This is obviously an adaptive phenomenon which may enable the bacteria to live on an otherwise unsuitable environment. Pilcher emphasises the close analogy between

the antibiotic-sensitivity reactions of bacteria and the antigen-antibody reactions in higher animals. It is not improbable that the autotrophic bacteria organisms which can synthesise their protoplasm from inorganic substances, were the first life to appear in the world—a speculation which receives support from paleontology, because Wallace found what were probably fossil bacteria in pre-Cambrian strata, which are the oldest of the sedimentary strata. It is conceivable that the antigen-antibody reactions evolved from the antibiotic enzyme reactions, and that these adaptations perhaps the most important and generalized of all vital phenomena, existed the day in the origin of life.

A very important variation of certain organisms is the faculty of developing resistance to therapeutic drugs. I have, for example, seen in my laboratory mice and guinea pigs to which strains of typhimurium and other drugs which are lethal to the ordinary unselected strains of the typhimurium. The important character of drug resistance seems to be permanent, at any rate it is inherited unaltered over many several generations, without the organism having to have further contact with the drug. It used to be thought that the drug-resistance was lost if the typhimurium was again passed through the mouse strain *Shimoda* variation, but Warrington (1933) and his co-workers (1933) have demonstrated conclusively that the typhimurium strains do drug fastness after undergoing an evolved development in the mice. By these observations we of course epidemiological significance, because it would appear possible to produce, by the mere treatment of a human host, reservoirs of drug-resistant parasites from which the previously sensitive strains could be re-gained but now in an unstable form. This work has still greater academic interest, because it provides an incontestable example of the permanent inheritance of an acquired adaptation to the environment. Warrington's *Shimoda* variation, that acquired character has not inherited is not strictly true in the case of some bacteria organisms which only express themselves by simple division. In these genera (cells) it is impossible to distinguish variations, which are hereditary adaptive characters from bacterial constancies which by chance happen to be useful. Until recently most biologists followed Warrington and believed that the germ phase was absolutely immune from the action of any external influences. Nevertheless at the present time, because the germ phase and epiphyse are united autocentrally in a single cell in which there is ready evidence of any accident. These cells, relative to higher animal organisms, present an enormous surface to the external environment and thus the undifferentiated hereditary character must be proportionately more exposed to external influences than the germ line of higher animals, which is buried deeply in the soma and kept constantly buried in body fluids of almost constant composition. Indeed Warrington (1933) himself recognized this fundamental difference between the normal protists and the animal organisms because he says:—

In these lower forms (of life) whatever they come in contact with is their environment.

and genetic economy, these single gene mutations, which are detected as natural polymorphisms in *gryllus* and *mus*, are much more frequent than polymorphisms in the *Drosophila* species which have many genes.

Although complicated life histories with several stages of reproduction have been postulated by some biologists for the mutations listed in that history, agreement only by simple means. An interesting confirmation of the studies that has been recently made by Wyckoff (1944) who took numerous graphs of series of several types of bacteria, including *E. coli* bacteria, and it is therefore the phenotypic expression for which, in particular, complicated life histories have been postulated. The microphotography revealed that involution lines and other appearances suggesting several stages were almost entirely dead or degenerated bacterial cells.

Nevertheless, according to Haldane (1949) there is probably no fundamental difference between bacteria and higher animal organisms in the origin of new variation, which are probably all produced by the natural selection of fortuitous gene-mutations. Among the millions of rapidly dividing cells of a bacterial species all sorts of mutations occur over and over again and although the majority of mutations have no survival value, yet now and then a fortuitous variation coincides with a psychological moment when the conditions give the mutant an advantage in the struggle for existence greater than that of the parent strain. Hence what may appear to be a purposeful adaptive variation is no adaptive character which is observed as in Fisher's experiments which appeared new hereditary variation in the *Staphylococcus aureus* as a result may only be natural chance variations. Haldane's work with *D. melanogaster* was continued by many other workers has demonstrated that the gene pool of higher animals is by no means as unchangeable as natural selection as had been hitherto believed. All kinds of mutations have been produced by x-rays, and since such mutations are typically fortuitous, it was to be expected that the vast majority of x-ray mutants would be non-viable malformations. Hence the fact that here and there, by chance, an apparently useful mutation with a greater importance of life than the parent strain did appear in the search of exposure to x-rays, and that in some cases a further exposure to the rays led to a reverse mutation is strong evidence that x-ray mutations are the same as natural mutations and are not in any way merely pathological mutations due to injury of the gene pool (see Haldane (1949)).

It must be understood that the frequency of gene mutations is a species character—that each species has its own mutation rate. The effect of x-rays is to accelerate the natural species mutation rate. In *Drosophila*, the fruit fly, for example x-rays speed up the rate 150 times. The same gene mutations can occur over and over again. Penrose and Haldane (1936) have calculated that of the mutations which a mouse life for human homologous did not frequently occur, some 25 per cent of all homologous genes would be changed by natural selection in each generation. Yet

Alison's case appears to resemble in the particulars of its development, it is therefore suggested that the first form of diphtheria is not indigenous to which diphtheria, hemophilic, or the mode is passed, but is carried from 1000 to 100,000 bacteria. Taking a generation in most of time, the lower numbers only is higher than that of the bacteria called, which leads to the first fly, which happens only once in 100,000 bacteria from which it would seem that *Alison* separates a more suitable species than *Diphtheria* *melanogenes*.

I have spent some time in determining variations for if we can persuade ourselves that variations of all kinds must be frequent in pathogenic bacteria, we need not be so strict in our efforts to believe that many of the phenomena of disease and epidemics are caused by changes in the character of the infecting organism. For purposes of illustration I will take that group of organisms of which I have had most practical experience—the diphtheria bacilli. There are two main variants of *C. diphtheriae*: the *viridans* or *viridans* bacillus, and the *viridans* bacillus. There is no reasonable doubt that the latter is often a variant of the former. A most interesting piece of experimental evidence that viridans bacilli often change into viridans under natural conditions is reported by Alison (1904), who removed viridans diphtheria bacilli from the suppurating sore of a non-viridans diphtheria patient. In eight out of three cases children the viridans variety was replaced by the viridans variety of *C. diphtheriae* and on four occasions Alison found an intermediate period when both viridans were present at the same time. It is a well known observation that about two thirds of all diphtheria convalescents fail to develop an appreciable quantity of diphtheria antitoxin in their blood. Such subjects, as they have recovered from an attack of diphtheria, on again being pure producers of viridans, must have an efficient antitoxin immunity of some kind to supplement their low natural immunity. Therefore the viridans or replacement of viridans by viridans bacilli, which was noted in Alison's case, probably took place in subjects who had previous failed attempts. Thus we can explain the frequent bacilli throwing off viridans variants at frequent intervals, then, in the experimental conditions of the convalescent diphtheria case, these harmless variants, for some unknown reason—perhaps because they and their low immunity from the host than their viridans parents—will be selected and will survive after the viridans diphtheria have been eliminated. In other words, in the throat or ear of a convalescent diphtheria patient viridans bacilli are more closely adapted to their hosts than are viridans bacilli, and in the struggle for existence the viridans variants are naturally selected for survival.

In order to extend this hypothesis to explain certain unusual observations on the same case the viridans and viridans diphtheria bacilli in Greenwich Hospital School it is assumed that, as in the non-viridans diphtheria patient, certain School's susceptibility when attacked by

were as prehypocretaceous. Although young diptheria-like diptheria flies, which may explain the disease (and/or by an unknown cause). The symptoms are similar to the common cold, but the extent of spreading of the infection had not the risk of infection the same for children and adults. In some cases diptheria, which were found twice as frequently among the ones who had positive Schick reactions as among the Schick-negative, the (1) high random carrier selection was confined to Schick-negative and (2) why during a certain period the incidence of random carrier infection was higher among the Schick-negative than was the random infection (and) among regions and clinical diptheria among them, but also of positive Schick reactions at the commencement of the outbreak.

After the whole school had been artificially supplied with a definite against diptheria toxin, but had not necessarily received an increment of bacterial resistance against the organism which makes diptheria toxin, the random carrier rates were at times higher than ever. It can be supposed then, the number of Schick susceptible being now negligible, the evidence instead, having no greater natural value in the threat of the Schick-negative than the random diptheria bacilli, was gradually replaced by the latter. As regards the possibility of a naturally that various and unknown causes are often associated. The power of bridging the gap between host and host is vital for the survival of any parasite, and it is possible under varying circumstances the random organisms, by damaging the host tissues or their natural in a host host, are able to establish themselves more frequently than their less effective cousin.

The nature of the struggle for existence between the toxigenous and atoxic diptheria bacilli is in accordance with the natural selection hypothesis, and therefore may be a true story too, although it is just as likely to be fiction. Lastly in America some combined Schick and carrier surveys showed no difference in the carrier rates for both susceptible and random bacilli among the Schick-negative and Schick-susceptible children in the community, which is to say that, contrary to the usually accepted generalization that random carriers never have positive Schick reactions, in this American series of observations there was no association between Schick sensitivity and random carrier selection. But the more one studies the subject the more one finds that what is true of human heterozygous relationships is in one place at one time is false at another place or the same place at another time. For example in 1915-16 during the persistence of epidemic meningitis the carrier rate for agglutinable meningococcus was 9.0 per cent in Chatham. In the same place, during a year (1919-20) when no case of meningitis was reported, the carrier rate for agglutinable meningococcus was 5.0 per cent. While at the same time as the colored rate was found at Chatham the meningococcus carrier rate was only 5 per cent at Portsmouth although half a dozen cases of meningitis had occurred among the naval personnel of that port, who, as far as would be

some hold under conditions of political liberalisation, as prevailing at Chittam. There is no doubt that the language used in meetings was very free, already adapted to the local situation. However, Protestant missionaries had, which was only with Protestant missionaries one tenth the number of people which were converted, managed by meetings close to Chittam. In addition to Chittam, meetings were disrupted by their missionaries during the period of conversion, but that the case of Protestant's lady Duffer and Barbara (1990).

Returning to the aphid-host interface, aphidism¹ of the variety of leafhopper by meadow has not been confined to the meadow and associated vegetation. Several other changes in the composition of the aphid-host facultative population were noted in Krasnodar. The most interesting was the complete replacement of the "winter" meadow variety by the more virulent *Leafhopper* group. *Aphis fabae* leafhopper within three months, and the replacement of winter predominance within another three months. Another meadow aphidism is described by Kabanov and Marshall (1949) in Blagovestok, where he is apparent causes the frequency of infection with the "intermediate" and the "green" strains of *C. Aphis fabae* gradually and regularly became increased during a period of two years. At the beginning of the period of observation, "green" strains caused 20 per cent of all aphid virus cases against about 50 per cent caused by "winter" strains, at the end of the period the corresponding figures were "green" 50 per cent and "intermediate" 50 per cent. Meanwhile the proportion of aphidism was caused by "winter" strains early consisted at about 50 per cent. Although we understand nothing about the mechanism of these mysterious changes in the faunal flora of *Mezopis* species, I find it easier to suppose that such alterations in the faunal flora are sometimes due to the natural selection of frequent herbivorous pest populations, at moments when these insects are propitious for their survival and dissemination. Thus to suppose the existence of "meadow specific" variants of *A. fabae* seems always true in type, and their concentrated in one of way places from which they invade other habitats at seasonal or seasonal intervals.

How long is the life of the President?

In spite of the great variation within a so-called species of the pathogenic bacteria, they are parasites in general, exhibit a considerable specificity as to one aspect, namely that usually each species of parasite is only adapted under natural conditions to live in one species of host. Each species of animal therefore has its own parasite flora, and hence, peculiar to itself and in general therefore the diseases of one animal are bound to others. Of course there are many exceptions: in human diseases we need only mention plague, typhus, tuberculosis and anthrax, for whose causative bacteria are primarily parasites of the rat, the cow, and the goat respectively. Again it is noteworthy that parasites are only adaptable to living organisms, when these they are capable to compete with the organs-

physical process is represented by \hat{H} in the first integral, where \hat{H} is the sum of the unperturbed Hamiltonian \hat{H}_0 and the perturbation \hat{H}_1 . Therefore the physical first order term $\hat{H}_1^{(1)}(\hat{H}_0)$ is equal to $\text{Tr}[\hat{H}_1^{(1)}(\hat{H}_0)]$ and the second order term is $\text{Tr}[\hat{H}_1^{(2)}(\hat{H}_0)]$ in the last.

How quickly the parents' parenting is now reported as a severe biological parental loss, the parents' involvement and participation may vary with it both before and during the bereavement period, but into a bereavement state, in itself, the parents may already be bereaved at once as much as much later, because of the loss of their child quickly. In other cases that loss of parents, and the bereavement, may be delayed because the affected parents are not fully able to accept the loss, and may then become the 1st level of bereaved parent, as a loss, later in the bereaved state. This loss is not a loss, but a loss. However, the advantages shown in the loss of two parents, which leads either to death or new parents, are the same. The loss of two parents, which leads either to death or new parents, are the same. The loss of two parents, which leads either to death or new parents, are the same.

model equations and estimates (especially due to stopped processes). I feel that it is useful and well supported to rely on the great majority of human evidence.

[illegible]

The Secretariat of Defense

1950) in which 1 of 1000 persons is more prone to keep a close personal relationship with the aggressor in its environment. Perceived displacement in humans is similar to that of other species in that, perhaps, one species does not have the same feelings, thoughts, and other responses to an external stimulus as another. In fact, displacement in humans, if it exists, would seem to imply a changeable environment around us in some number of emotional or physical dimensions. Such a state, if it exists, is a state of flux, not, unless the

conspicuous in those stable species and the fluctuations observed in range, food, or numbers, induced by fluctuations caused by factors such as (1) regularity in the direct influence of the environment; (2) indirect influences being periodically dynamic, phenological, seasonal, or the occurrence of changes. Organisms are for ever making growing, maturing and dying, the physical environment is for ever changing, and things change, therefore, must persist between and between by doing, therefore, adjust themselves to changes in their environment by adjustment that is not constant, surroundings, such adjustments take time, and accordingly, when a man is adjusting his behavior to a great world, an attack of typhoid fever in a short time, or when I am outside my room to read this page. During the periods of adjustment to a new situation the adjustment to the environment cannot be perfect.

The appearance of these adaptations in well established nature is due to all the species in the same area being in relative equilibrium with each other that is to say the average number of members in each species, or less constant. For example the same number of members of the same number of eggs which produce the necessary stress of offspring to keep their number constant in spite of the odds. Should however some irregularity occur, about most of the odds, the equilibrium is upset and the new one is equally as equally that the resultant overbreeding, or some other factor, allows a seasonal parasite to start an epidemic, which reduces the mass to their original number. Should the new parasite have increased their numbers in subsequent of the temporary epidemic of each being given them a superabundant supply of food the equilibrium is once more restored.

In unstable regions where the equilibrium is relatively stable, and given duration and organisms are not the predominant phenomena in that they are among Man and his domestic animals and plants. The apparent absence of stability in nature led Ray Lankester (1895) to write:

It is a remarkable thing—which quickly sets in how true this our present knowledge seems to suggest—that the adjustment of organisms to their surroundings is so entirely complete in Nature apart from Man, that scarcely any poisonous or noxious and normal phenomena under these conditions. It is no doubt difficult to investigate the nature even the process of Man as an observer that supplies human intervention. Nevertheless in the many years which have passed since Lankester wrote these words much evidence has accumulated to show that disease and epidemics do sometimes occur in wild Nature apart from Man's intervention. Moreover, especially in the forest and plant world, bacterial and viral parasites are everywhere common. But in uncultivated Nature, parasites, including are usually kept in bounds at a steady endemic level by the natural presence of all the organisms in the same environment. An environment in equilibrium is supporting the maximum number possible of each species under the prevailing conditions.

because the limit of increase of every organism is such that its members will always increase, if any natural check to the potential geometrical rate of multiplication of the species is removed: as we saw in the example just given of the mice and the owls. And, moreover, if fresh checks appear, or the conditions of life become more adverse, the population of the affected species will decline to a fresh position of equilibrium or to complete extermination.

Although it appears rare for parasites to be the chief factors limiting the numbers of a favored human host, yet under certain conditions, as for example in those who contract or catch malaria, or in hypochondriacs, disease may be the main check on the size of the population. For instance, according to Thomson (1934), chiefly as the result of the ravages of malaria, some out of every ten children born in Scotland die before they are 10 years old, yet the fecundity and fertility of the survivors appear sufficient to balance the missing vintage of life. It would be expected that in such a situation should some always increase still further the pressure of the malarial parasite on the human host, the potential founding of Homo sapiens would be at last counteracted by the environmental resistance, and as fact, certain parts of the world, such as Northern Ceylon are assumed to have been depopulated by the malarial parasite.

Hypothetically in the absence of any competition provided with an unlimited food supply and unlimited space for expansion, each species would continue to increase geometrically at the maximum rate consistent with its specific heredity. Under natural conditions this maximum rate is never realized but at various times it may be approached closely, as for example when the first part or two of rabbits got loose in Australia, and, under exceptional conditions for a short time after a total take of millions of deer in a mountain with predators or hunters. As the numbers of individuals in the species increase the competition amongst themselves, and with the members of any other species with whom they compete, becomes more and more keen. That is to say, the environmental resistance to further increase in population density grows as the numbers of the species increase. Thus the environmental opposes more and more resistance to the natural fecundity of the species and finally these two forces are equalized so that further multiplication ceases. The birth-rate and death-rate now balance, and the maximum may be said to be attained: with the species in question and in its supporting the maximum number possible under the prevailing conditions.

I would like to refer here to a fascinating book by Gause (1934) in which he documents very simply the mathematical aspects of the struggle for existence, and relates how he was able to show, experimentally, that the graphs of certain equations theoretically deduced by Pearl and Reed and others, give a good first approximation to the curve which is obtained when the numbers of yeast cells or protozoa growing in a standard culture medium are plotted against the time.

An *in situ* *Rhizoglyphus* nest, which I found on a growing poplar in Quebec implies the model concept of 'vacant places' or 'unfilled opportunities for growth' in the environment. The number of 'vacant places' in the environment is the difference between the number (or rather mass) of the species actually present at the time, and the maximum number which the environment will support when it and the species are in equilibrium. The ratio equals the number of 'vacant places'; the greater will be the magnitude of the environment's further reclamation of the organism in question.¹

When, by accident or design, animals plants or micro-organisms are transferred from their normal habitats into foreign or strange environments, they more often than not fail to establish themselves, because they are unable to compete successfully with the native forms and flora. There are no unexpected niches or 'vacant places' to which the would-be-intruders are adapted.

On occasion, however, some birds plants amongst birds the computer has it: insects in the foreign country have more than that to which it was accustomed in the land of its origin, and hence may, multiply to the extent of becoming a noxious pest, especially when its numbers are relatively low compared to the 'vacant places' awaiting occupation: it when the environmental resistance which the invader has to struggle against is almost negligible. Such new colonisations were a general aspect of the equilibrium of the world's ecology and are analogous to epidemics of disease. The damage done by the recent introduction of the Canadian carp into Central Europe and parts of the British Isles, and the successful invasion by the Chinese *Morus* crab of Quebec's coast, are recent examples of the European waterways. It will take a fresh position of equilibrium is ultimately attained, as the invader may exhaust most niches by depleting its source of food supply. For example, Flouka, a Canadian water weed, when first introduced into England caused much anxiety over its choking up ponds and canals, but subsequently the weeder settled down to a position of equilibrium as an enormous number of the English has gradually become the water weed had used up some extent of food supply or because the native plants and animals had learned to compete with it successfully. The agricultural entomologist can supply many examples of the general alternative to risk more niches. In new unexploited fields and

The above simple representation of the whole is inherent with 1 growth, population and environmental resistance is in the equation:

$$\frac{dN}{dt} = N^2 \left(\frac{K - N}{K} \right)$$

where $\frac{dN}{dt}$ is the rate of increase of the number N in a certain depending on the population, N , of the species. N the number of the species present at t time, and K the maximum number that the environment can support. $K - N$ therefore equals the number of 'vacant places'.

infection and reproductive length is often much greater than that found on vigorous, upright, well-planted, and so cultivated plants; damage is as high as 50% on some of them, whereas, and heretofore, most diseases on agricultural plants have generally attacked the decaying plants from the complicated conditions of being first introduced from abroad. The concept of post-mortem immunity, successfully controlled by the introduction of sterile insect-pollinators which prey on the pest. In their nature that they control (and thus, the pest, now in equilibrium. But in the end, when insects have eaten their host, equilibrium is unstable (all the biological control) leaving it as it is, and destroyed the pest, parasites will let the host's body to live on.

The behavior of the same insect (host) is similar to that of a disease agent as it enters a new country, where at first it causes devastating epidemics and eventually settles down to a more or less stable endemic level causing continuity in its interference with the host species or whole. On the other end the resistance of the "biological control" which is useful in attaining equilibrium with the pest, is parallel in kind of the case of a disease, such as yellow fever, which attacks a town, when it has commenced or killed off its susceptible hosts the virus dies also. The disease then disappears and a fresh crop of susceptibles has grown up and a fresh attack of virus is introduced.

Man, a continual interference with his own environment is perhaps the chief reason of his special predilection to epidemics of parasitic diseases, but there are other factors which may assist in making great diseases such a parasite of *Man sapiens*. Man's only serious competition to the struggle for existence, other than *Man himself* are his parasites, whose fitness is of course bound up in his. When hosts are few and far between and not increasing so rapidly a parasite which cannot do much damage to the host hosts as to limit their capacity of reproducing new hosts, has little chance of survival, and such random parameter will be gradual be eliminated by natural selection. But if the density of the host species is great and increasing — the ranch place, for its parasites are also increasing and in addition, the all important problem in parasites, namely, the finding of the gap between host and host becomes much more of selection. In dense growing populations pathogenesis and resistance are not the landscape but, as at other times. Hence, when a species is growing, and overgrowing an environment, the characters of resistance and pathogenesis are not too seriously dealt with by natural selection. Likewise the enormous thrushy growth of the more and the yolk (1907) has mentioned many instances which show that when the way opens a species escapes from its natural biological checks, and multiplies enormously, the consequent overgrowing is often ended by a lethal epidemic of parasitic disease. Speaking metaphorically the parasite host finds itself enjoying such a soft life in the overcrowded host-free that the parasite becomes careless about keeping its good terms with

these levels, and begin to reflect on (such) changes) in the latter that ultimately they come to much less of notice than changes in their patterns. If this is true it is a peculiar paradox that nature will not fight against changes only in some cases, for protecting her permanent values, the real effects of these great balances. What is often a knowledge of the central or the constant community is made out a sense in the level to be positive.

To summarize the density of *Alouatta* depends on her environment in a general greater, weight for weight, than that of any other mammal, and even shows her population density and environment as often and so rapidly that her patterns have little time to adjust themselves to one human balance before they find themselves in another. Yet, in spite of her open density of population, in open parts of the world there are still many 'vacant places' left for man and his patterns together with those of the favored species to protect and cultivate. Moreover, man is ever deriving new methods which tend to increase the number of 'vacant places'. *Alouatta* appears to have working against a small level environmental resistance that are still open to equilibrium with their environment. The majority of men have not to be so very fit in order to escape elimination by natural selection, but will survive when the environment is saturated with their species, have to work most of their life at high pressure in order to survive—there are rarely 'vacant places' to open for wild animals other than man. Therefore man is able to carry a heavier load of disease than the other mammals and will continue to multiply and, for the present, to maintain his great position as the growing point of organic evolution, and therefore we may regard *Alouatta* as grateful on the face of Nature which she makes us trying to escape her competition after it has been so easily opened by the perverse and incorrigible behaviour of her restless first-born child, *Alouatta* appears.

REFERENCES

- BARRETT, W. D. (1933). *Am. J. Zool.* 21: 209-212, 213-214.
 BARNARD, W. D. (1933). *Principles of Systematic Zoology*. 1st ed. London: Paul & Co.
 BARNARD, W. D. (1934). *Am. J. Zool.* 22: 213-214.
 BARNARD, W. D. (1935). *Am. J. Zool.* 23: 213-214.
 BARNARD, W. D. (1936). *Am. J. Zool.* 24: 213-214.
 BARNARD, W. D. (1937). *Am. J. Zool.* 25: 213-214.
 BARNARD, W. D. (1938). *Am. J. Zool.* 26: 213-214.
 BARNARD, W. D. (1939). *Am. J. Zool.* 27: 213-214.
 BARNARD, W. D. (1940). *Am. J. Zool.* 28: 213-214.
 BARNARD, W. D. (1941). *Am. J. Zool.* 29: 213-214.
 BARNARD, W. D. (1942). *Am. J. Zool.* 30: 213-214.
 BARNARD, W. D. (1943). *Am. J. Zool.* 31: 213-214.
 BARNARD, W. D. (1944). *Am. J. Zool.* 32: 213-214.
 BARNARD, W. D. (1945). *Am. J. Zool.* 33: 213-214.
 BARNARD, W. D. (1946). *Am. J. Zool.* 34: 213-214.
 BARNARD, W. D. (1947). *Am. J. Zool.* 35: 213-214.
 BARNARD, W. D. (1948). *Am. J. Zool.* 36: 213-214.
 BARNARD, W. D. (1949). *Am. J. Zool.* 37: 213-214.
 BARNARD, W. D. (1950). *Am. J. Zool.* 38: 213-214.
 BARNARD, W. D. (1951). *Am. J. Zool.* 39: 213-214.
 BARNARD, W. D. (1952). *Am. J. Zool.* 40: 213-214.
 BARNARD, W. D. (1953). *Am. J. Zool.* 41: 213-214.
 BARNARD, W. D. (1954). *Am. J. Zool.* 42: 213-214.
 BARNARD, W. D. (1955). *Am. J. Zool.* 43: 213-214.
 BARNARD, W. D. (1956). *Am. J. Zool.* 44: 213-214.
 BARNARD, W. D. (1957). *Am. J. Zool.* 45: 213-214.
 BARNARD, W. D. (1958). *Am. J. Zool.* 46: 213-214.
 BARNARD, W. D. (1959). *Am. J. Zool.* 47: 213-214.
 BARNARD, W. D. (1960). *Am. J. Zool.* 48: 213-214.
 BARNARD, W. D. (1961). *Am. J. Zool.* 49: 213-214.
 BARNARD, W. D. (1962). *Am. J. Zool.* 50: 213-214.
 BARNARD, W. D. (1963). *Am. J. Zool.* 51: 213-214.
 BARNARD, W. D. (1964). *Am. J. Zool.* 52: 213-214.
 BARNARD, W. D. (1965). *Am. J. Zool.* 53: 213-214.
 BARNARD, W. D. (1966). *Am. J. Zool.* 54: 213-214.
 BARNARD, W. D. (1967). *Am. J. Zool.* 55: 213-214.
 BARNARD, W. D. (1968). *Am. J. Zool.* 56: 213-214.
 BARNARD, W. D. (1969). *Am. J. Zool.* 57: 213-214.
 BARNARD, W. D. (1970). *Am. J. Zool.* 58: 213-214.
 BARNARD, W. D. (1971). *Am. J. Zool.* 59: 213-214.
 BARNARD, W. D. (1972). *Am. J. Zool.* 60: 213-214.
 BARNARD, W. D. (1973). *Am. J. Zool.* 61: 213-214.
 BARNARD, W. D. (1974). *Am. J. Zool.* 62: 213-214.
 BARNARD, W. D. (1975). *Am. J. Zool.* 63: 213-214.
 BARNARD, W. D. (1976). *Am. J. Zool.* 64: 213-214.
 BARNARD, W. D. (1977). *Am. J. Zool.* 65: 213-214.
 BARNARD, W. D. (1978). *Am. J. Zool.* 66: 213-214.
 BARNARD, W. D. (1979). *Am. J. Zool.* 67: 213-214.
 BARNARD, W. D. (1980). *Am. J. Zool.* 68: 213-214.
 BARNARD, W. D. (1981). *Am. J. Zool.* 69: 213-214.
 BARNARD, W. D. (1982). *Am. J. Zool.* 70: 213-214.
 BARNARD, W. D. (1983). *Am. J. Zool.* 71: 213-214.
 BARNARD, W. D. (1984). *Am. J. Zool.* 72: 213-214.
 BARNARD, W. D. (1985). *Am. J. Zool.* 73: 213-214.
 BARNARD, W. D. (1986). *Am. J. Zool.* 74: 213-214.
 BARNARD, W. D. (1987). *Am. J. Zool.* 75: 213-214.
 BARNARD, W. D. (1988). *Am. J. Zool.* 76: 213-214.
 BARNARD, W. D. (1989). *Am. J. Zool.* 77: 213-214.
 BARNARD, W. D. (1990). *Am. J. Zool.* 78: 213-214.
 BARNARD, W. D. (1991). *Am. J. Zool.* 79: 213-214.
 BARNARD, W. D. (1992). *Am. J. Zool.* 80: 213-214.
 BARNARD, W. D. (1993). *Am. J. Zool.* 81: 213-214.
 BARNARD, W. D. (1994). *Am. J. Zool.* 82: 213-214.
 BARNARD, W. D. (1995). *Am. J. Zool.* 83: 213-214.
 BARNARD, W. D. (1996). *Am. J. Zool.* 84: 213-214.
 BARNARD, W. D. (1997). *Am. J. Zool.* 85: 213-214.
 BARNARD, W. D. (1998). *Am. J. Zool.* 86: 213-214.
 BARNARD, W. D. (1999). *Am. J. Zool.* 87: 213-214.
 BARNARD, W. D. (2000). *Am. J. Zool.* 88: 213-214.
 BARNARD, W. D. (2001). *Am. J. Zool.* 89: 213-214.
 BARNARD, W. D. (2002). *Am. J. Zool.* 90: 213-214.
 BARNARD, W. D. (2003). *Am. J. Zool.* 91: 213-214.
 BARNARD, W. D. (2004). *Am. J. Zool.* 92: 213-214.
 BARNARD, W. D. (2005). *Am. J. Zool.* 93: 213-214.
 BARNARD, W. D. (2006). *Am. J. Zool.* 94: 213-214.
 BARNARD, W. D. (2007). *Am. J. Zool.* 95: 213-214.
 BARNARD, W. D. (2008). *Am. J. Zool.* 96: 213-214.
 BARNARD, W. D. (2009). *Am. J. Zool.* 97: 213-214.
 BARNARD, W. D. (2010). *Am. J. Zool.* 98: 213-214.
 BARNARD, W. D. (2011). *Am. J. Zool.* 99: 213-214.
 BARNARD, W. D. (2012). *Am. J. Zool.* 100: 213-214.
 BARNARD, W. D. (2013). *Am. J. Zool.* 101: 213-214.
 BARNARD, W. D. (2014). *Am. J. Zool.* 102: 213-214.
 BARNARD, W. D. (2015). *Am. J. Zool.* 103: 213-214.
 BARNARD, W. D. (2016). *Am. J. Zool.* 104: 213-214.
 BARNARD, W. D. (2017). *Am. J. Zool.* 105: 213-214.
 BARNARD, W. D. (2018). *Am. J. Zool.* 106: 213-214.
 BARNARD, W. D. (2019). *Am. J. Zool.* 107: 213-214.
 BARNARD, W. D. (2020). *Am. J. Zool.* 108: 213-214.
 BARNARD, W. D. (2021). *Am. J. Zool.* 109: 213-214.
 BARNARD, W. D. (2022). *Am. J. Zool.* 110: 213-214.
 BARNARD, W. D. (2023). *Am. J. Zool.* 111: 213-214.
 BARNARD, W. D. (2024). *Am. J. Zool.* 112: 213-214.
 BARNARD, W. D. (2025). *Am. J. Zool.* 113: 213-214.

himself and removed from an attitude of helplessness, and he can then turn to dwell upon the thoughts and emotions that should ensue from this.

(d) By its means we have an excellent medium for stimulating and maintaining a good system and the established social consciousness in the man. Not only is the habit of cleanliness maintained, but also a sense of responsibility and capacity for co-operation. This may or may not result in recovery, but it may at any rate assist in bringing the patient up to a higher level and retard the process of mental isolation and deterioration.

(e) A work atmosphere results in the general improvement of the atmosphere of the hospital itself. Monotony is counteracted, as things are relieved, and the otherwise dull routine of institutional life is broken up and its place taken by a busy activity, which is itself in an endeavour to cheerfulness and a spirit of helpfulness and fresh interests. Fresh factors taken together make a great deal, and are surely worth striving for.

By raising the general level of behaviour, we assist in counteracting the tendency towards the destruction of hospital property and clothing, so that occupational therapy, besides being constructive and creative, is valuable from an economic point of view. Its value as a comforting factor and as a reinforcement of personality are hardly to be overestimated.

When we speak of occupational therapy we do not confine the term solely to handicrafts. It is an extremely flexible term and its activities can be extended to include a large variety of methods by which stress can be applied and which for the sake of clarity might be classified under the following headings:—

- (1) Occupational
- (2) Recreational
- (3) Hygienic

Occupational Methods—(a) By utilizing the already existing work departments of the hospital viz. Employment in the laundry, galling, farm, gardens and grounds. Attending to the personal cleanliness and tidiness in the wards according to the tasks and instructions of the doctors, nurses, nursing and administrative personnel and redecorating, &c. (b) By confining myself entirely to those occupations at which work can be employed. (c) By means of handicrafts. These are very numerous and require varying degrees of skill. I shall, therefore, only mention a few of the more common variety: millinery work, hand work, (engraving, paper, needle work, toy making, leather work, basket work, pottery, brush painting, book binding, woodwork, knotwork, and numerous other toys and crafts. Waste material can be utilized as a source of waste, viz. cloth made from old clothing, toys and numerous household articles from old packing cases. As an example of this, I might mention that we make most attractive articles from empty soap boxes, which are of three-ply wood and are not so cheap. Very little work is necessary to turn these into solid little tables and tables tops. We also turn out a very useful and attractive little table or 'bedside table' from empty flower decorative cases.

Amusement:—(a) Properly organized outdoor games. (b) Golf, tennis, croquet, sports garden place. (c) Physical drill, preferably out of doors. (d) Parade in the largest possible extent within the limits of safety. (e) Country walks, motor drives, picnics and shopping parties. (f) Games shown, concert parties and community singing. (g) Well-equipped recreation rooms with a plentiful supply of light reading material, writing material and facilities for such recreations as billiards, bagatelle, gymnasium, cards, chess, dominoes, etc. (h) Bathing, swimming and draughts. Bath rooms might also be equipped with wireless and contain a gramophone and piano. (i) Wind driven and dancing.

Social.—Solitary friends and voluntary visitors should be given every facility and opportunity to visit the patients and special reception rooms should be fitted out, where the patients can receive their visitors in comparative privacy. These rooms should be made as bright and as cheerful as possible. Such visits should not necessarily be confined to the grounds of the hospital and it is true that the value of private convalescent work. A patient finding himself beyond the four walls of the hospital for the first time and free from supervision may react in a variety of ways but if he has already been accustomed to the sights and sounds of the noise world outside we greatly facilitate for all concerned.

The numerous ways and means of carrying out occupational therapy have been shown to be as diverse and are in the same line as occupational music to apply that these should be but little difficult in carrying out least 60 per cent. of the patients in any mental hospital within an scope.

It is undeniable that a patient whose mind is likely to have a distincting influence upon others should be allowed to work with the quiet and better type of patient and it therefore becomes necessary to group or grade the patients accordingly. One should be taken to see that patients are only given those occupations in which they are suited both from a physical as well as a mental point of view, and the main stress must not be placed upon output and finish, having in mind that the main object of occupational treatment is its therapeutic value to the patient. A certain amount of waste of material and loss of time is inevitable but this can be minimized by grading the patients and by employing them at work best suited to their particular condition at the time. It must be said with any degree of certainty that any one particular type of occupation is more suited to a special form of mental illness than another. Each case must be judged on its merits and is more or less a law unto itself.

The quiet and restricted type of patient, who has sufficient insight and self-control, is comparatively easy to deal with and no difficulty should be experienced in placing him, but in dealing with those who need close attention and observation it is better and safer to deal with them in their day ward. Such cases should certainly not be allowed to remain idle, they can be employed at the simpler forms of occupation in which no elaborate equipment is necessary. The main difficulty seems to deal with one the

restless, hostile, turbulent and demented types, however, the method can certainly be extended to direct the energies on a more constructive way, while the turbulent type (whose symptoms are excitations resulting from the acute stage of his illness which have not been controlled as the result of taking an hour normally and methodically should eventually be persuaded to drop these objectionable characteristics or at any rate obtain a sufficiently firm enough grip of reality to prevent such characteristics from becoming permanently established. We can do little or nothing for the greatly demented type, but the progress of dementia can be and should be retarded by the simplest occupations combined with habit training and reinforced activities.

The organization and application of an occupational therapy scheme in a mental hospital necessitates the introduction into the staff of additional personnel in the form of occupation therapists and instructors, and members of the existing nursing staff will need to undergo a special course of training so as to obtain a working knowledge of the simpler occupations and crafts. (It has to be said that the demand before this will become a compulsory item in the curriculum of every mental nurse's training.)

There is a diversity of opinion as to how this personnel can be arranged so as to carry out occupation therapy under medical control to the best advantage. There are various methods by which this can be carried out:—

(1) By the sole use of the existing nursing staff.

(2) By the addition of instructors or technicians to assist the nursing staff.

(3) Employment of occupation therapists in addition to instructors and nursing staff.

(1) *Sole Use of the Existing Nursing Staff*.—Before this can be done the staff will need to undergo a course of special training and instruction in some technical school centre. This means extra expense, loss of service and depletion of staff during the period of special training. The compulsory inclusion of such a training in the normal nurse's curriculum would naturally greatly facilitate matters in this direction, but such a training could hardly be expected to cover more than the simpler occupations and crafts, and it would seem preferable if no addition were made to the staff of a few persons with a special knowledge of the more advanced occupations and crafts.

(2) *Addition of Instructors or Technicians to Assist the Nursing Staff*.—The existing nursing staff can hardly be expected to acquire a thorough knowledge of even the simpler arts and crafts in the course of a month or so. A prolonged apprenticeship is necessary to enable one to master such commonplace crafts as carpentry, basket making, book binding, etc., and so, to overcome this difficulty, instructors are employed in addition to the staff, their role on the staff being to instruct the patients in the special and more intricate occupations and crafts. It does not seem altogether correct or safe, however, that such persons should be placed in charge of manual

patients without saying that they prefer to spend most of their time in the workshop and management of the material, and they have accepted the necessary regimen. It will be advisable to allow them to have the assistance of a fully qualified nurse to assist them with the clay. The rate of pay of the skilled workers is much higher than that of the patient-workers. It would, of course, be extremely easy, unless, very soon every point of view is to have a certain number of the working staff termed as technicians and that is nurses as well as craftsmen. The Royal Medical Psychological Association now have a section certificate which is especially for various types.

4th Employment of Occupational Therapists in Addition to Nurse Doctors and Nursing Staff.—The Senior Medical Officer or Superintendent plays the role of director and organizer in the general scheme of occupation therapy. He prescribes the treatment in the most manner as he prescribes drugs and he supervises the application of the therapeutic work. He must, however, have someone directly under him who can be responsible for instructing and giving points of direction to each work. The numerous experiments every day, done at either the chief or head attendance would never permit of him being available for such a task. If therefore becomes necessary to introduce an assistant, new class of officer, in a new grade of staff in the form of the occupation therapist. Such a person must of necessity have a considerable knowledge of the theory and practice of occupation therapy and he must also have the education and capability to interpret the suggestions of the Medical Officer to the various therapists who work.

The occupation therapist is a specialist and, as such, he will train the nurses in the occupation department, enlarging his sphere gradually as the training progresses and dealing with any difficulties in technique and therapeutic application that may arise from time to time. The occupation therapist will naturally require assistance in the work in the occupation centres in supervising the various therapy groups and in instructing the nurses. It is here that the many technicians will be employed in the best possible advantage.

Of these three methods, wherein occupation therapy can be carried out under medical control, the last appears to be the most desirable though it will obviously mean an increase in and re-arrangement of the staff, the extent of the reorganization depending upon the number of patients to be dealt with and the already existing proportion of staff to patients. If occupation therapy is introduced very gradually there should be no necessity for the increase of staff to increase training proportion and, on the other hand, the initial nursing staff is concerned it may perhaps, be quite unnecessary to increase their numbers at all. It may be said that in a hospital where no form of occupation is provided for the patients just as much if not more supervision control and assistance is required on the part of the nurses than in a hospital where a system of organized

occupation is produced owing to the improvement in the general behaviour of the patients that results from such occupation.

For a hospital containing say up to 1,000 beds, one occupational therapist is sufficient, his assistants would consist of the technicians or instructors in the already existing service departments and shops, plus perhaps an additional two assisting in the care of the hospital and besides, three, four, five or six more technicians might be necessary.

Every possible nurse should be trained in the more useful games there are the more successfully and satisfactorily the whole scheme will work. Such a training will take place in the hospital if possible and it will be carried out by the occupational therapist assisted by the nurse technicians. The training will not be an optional one, but will be taken as compulsory with the usual training that any nurse undertakes on general training so that each nurse, besides undergoing her or her special training in the wards, will also undergo a course of training in the occupational centre of the hospital. Such a training will last for less than one month.

Having determined thus far as to the scope of occupational therapy and on the methods by which it can be carried out, it may be perhaps of interest to know as far as the ways and means by which we endeavour to apply our principles at R.N. Hospital, Great Yarmouth.

Every endeavour is made to occupy as many patients as possible and, of our total numbers, i.e. 1933 we are able to occupy 80 per cent. Such occupation, however, cannot be looked upon as occupational therapy in its strictest sense but at the same time we are satisfied that we are endeavouring to carry out its principles as closely as possible according to the circumstances under which we are placed. Only those patients who are seriously ill, or physically ill, or those whose mental symptoms may render them temporarily unfit to associate with the rest, are removed from taking part in the daily occupational routine.

Two fully qualified instructors have been added to the staff during the last five years and fully equipped workshops have been created. Both instructors are experienced in the management of mental cases and one is an occupation therapist. The former teaches book making and mending and also heavy leather work, while the latter specializes in carpeting and woodwork, upholstery, rug-making, toy work and painting. Two members of the nursing staff, who are skilled at carpentry, assist the latter instructor in the carpenter's shop in the hospital while two further members of the nursing staff are sufficiently experienced in rug making to enable them to teach and supervise this type of work in the day wards.

Besides the carpenter's shop, book shop and occupational department, there is also the baker's shop and six patients employed here are under the charge of a skilled tailor. Other means of occupation are found in the gardens and grounds, laundry, gallery provision store and work, and the following list will show the numbers employed in each department. —

in Hospital Therapy Department	1000
Therapeutic shop	100
Art shop	100
Coffee shop	50
Artistic party and grounds	50
Patients and visitors	100
Children	100
Total	1500

Patients receive companions at 9 a.m. when the patients are delivered into the hospital in the various departments. Working hours are from 9 a.m. to 11 a.m., 1 p.m. to 4:30 p.m., 5:30 p.m. to 7 p.m.; this latter period only applies to those patients in the occupational therapy department, the classes here being split up into morning, afternoon and evening sessions and the patients attending these classes are guided according to their type. Evening classes are also held in some day wards and the cases in the sick ward are also included in the general occupational scheme.

A variety of work is carried out in the carpenter's shop and occupational department. All repairs to hospital furniture including upholstery, painting, staining or lacquer polishing, are carried out here, and, besides this, a large variety of wooden toys, wooden toys and numerous useful household repairs are turned out. Included amongst these latter articles are such things as soap holders, tea trays, crocheted toilet book rests, clothes hovers, racks, toilet paper racks, book racks, etc., which the boys receive of regular hours when finished, made, painted and dried.

Besides dealing with all book repairs, both for the patients and staff, the book shop turns out a variety of leather articles, such as books, cases, picture bindings, shopping bags and bookends.

Recreational facilities are provided for on numerous ways. Physical drill classes are held out of doors daily in winter and summer; cricket, football and tennis are played in their respective seasons; sports are held during the summer. A special library is made up in order to enable a certain number of patients to have their own special picture plots.

Patients are encouraged and are only very seldom allowed. Twenty-five per cent of the total number are allowed full parole, which is further divided into two per cent are allowed full or restricted parole. Parole days are on Tuesdays, Fridays and Sundays and parole hours 1 p.m. to 5 p.m. during the summer months and until 4 p.m. during the winter. All parole patients must, however, return for tea at 4 p.m. unless specially allowed. Any patient who may be guilty of abusing his parole has all privileges temporarily suspended and on restoration he is placed on full or restricted parole for a time, but as already stated each case is exceedingly rare and the granting of parole to the fullest possible extent runs this danger the very commonest source of worry that may be caused by a patient abandoning or misbehaving himself in some other way. Parole helps to keep a patient on terms with the outside world, lessens his selfishness and gives him faith in himself and

has a most satisfying and beneficial effect. It gives other patients something to look forward to, and adds to the general contentment of the community.

Working parties and shopping parties are taken not only on foot and the management of two land mowing horses are kind enough to allow up to fifty patients to spend their programme, throughout the year free of charge, once a week. These mowing parties take place on Fenshale and Bunkays and are composed of patients to whom people cannot be allotted: such parties are infinitely under appreciation. Fortnightly programmes in the hospital cinema which is now reserved to enable us hold between October and March, and concert parties, chess, drama, dances, and community singing are held on the same evenings but during the winter months. Trips to local beauty spots are held during the summer and are visited by large numbers of patients and the hospital car enables small parties to be taken for country drives, from time to time. Well equipped recreation rooms and a big modern complete the recreational scheme, which is surely a comprehensive one and one which we are satisfied, however but little else to be desired.

As far as the social side of our patients is concerned, we have special recreation rooms and yards where the patients may receive their visitors or friends in comparative privacy. These rooms of which there are four for the officers and one for the men, are specially furnished and are made to look as bright and cheerful and as homely and informal as possible. Every opportunity is given for relatives and friends to visit, and a large number of the patients are visited, especially during the summer months. The relatives of patients to whom the Naval Food regulations apply are allowed free travelling warrants only in the case of serious illness or in the instance of a funeral. The relatives of those patients whose cost of upkeep is borne by the Ministry of Pensions are allowed two free travelling warrants in each year to enable them to pay periodical visits regardless of the length of the patient. This is a concession which is very much appreciated by them.

We have lately opened a shop room in the hospital where numerous examples of the patients' handwork can be seen and purchased. The amount of valuable articles turned out annually, by the patients is very considerable indeed and although we receive a certain number of private orders during the year such orders are not by any means sufficient to enable us to dispose of our stock. It may be as well to mention here that the proceeds from sales are utilized towards purchasing materials and anything, seen and where is put aside for the benefit of the patients. Our chief and valued aid until the war was over, the War Disabled Ex-Servants Men's Exhibition, which is held annually under the auspices of the Red Cross in the Imperial Institute, London, each November. We have been very successful indeed at this exhibition during the last few years and obtained our highest position last year by being patronized by His Majesty, The Queen, The Princess Royal and the Duchess of York each being



Examples of maps created and used by children in the Construction Theory Experiment at the University of Illinois.

emphasizing and interesting to come from a psychotherapeutic point of view, and actually with a view to placing our views before medical officers, they were and stands in the hope of adding them to our list of customers. I should not dream of advertising ourselves in this manner were I not convinced that I am doing a good cause and one with which the Society might become better and more widely acquainted. The understanding and basis of the numerous articles we turn out is excellent and the press charged me very, reasonable in, I think, the accompanying list will show.

In conclusion I may add that since the inauguration of ophthalmological clinics here on a more or less organized scale there has been a very appreciable transformation in the general atmosphere of the hospital and it is also undoubtedly proven. Much more, however, remains to be done in making perfecting the general scheme, and thus I must leave to my colleagues whom, I feel sure, will recognize the value and importance of this line of treatment in the case of those unfortunate who have become seriously affected.

OPHTHALMIC SIGNS AND SYMPTOMS IN PITUITARY DISEASE

BY EDWARD DUNNICK, M.A. FOMPTON H.D. AND EDWARD DUNNICK, M.D.

OWING to the immediate anatomical relationships between the optic pathways and the sella turcica it is not surprising that visual symptoms are the first evidence of pituitary disease in fact they may remain the chief indication of a disease known throughout.

Ophthalmic manifestations may be the means of not only diagnosing the condition but also of localizing it precisely; it provides a measure here as to the rate of growth of the tumour and hence whether it is benign or malignant. Finally, it is the visual recovery which largely determines the prognosis.

The visual defects are inevitably due to one of two factors or to a combination of them, these are—

- (1) Pressure of a primary enlargement directly on the optic nerves, chiasm, and optic tracts.
- (2) Traction of the above structures due to increasing tension from below.

Compression of the adjacent cranial nerves, blood vessels, etc. have much to do with the eye, will be discussed later, but the results of hyper- or hypotension are not within the scope of this paper.

The visual disturbances again vary owing to the difference in the anatomical relationships of the optic path to the sella and also to the direction produced by the direction of growth of the tumour. Usually the anterior border of the chiasma lies over the hypophysis, next in frequency, but much less commonly the chiasma is directed further forward

suggested that (1) the lower limit aspect of the optic nerve sheath is involved in a process that the nerve highly specialized and developed a sufficient 2. sufficient field of 3. selection by disease. In this case the one that not present in the 4. then refers to the rate and, although therefore it is difficult to appreciate to the force of the compensation, they are inherently adjacent to lead the effect first. The result is a unilateral defect, or paracentral, scotoma, the latter being in the temporal field. These patients produce a great loss of vision and must be carefully distinguished from a true retro bulbar neuritis where the progression and development is really different. More consistent with what would be expected is a paracentral scotoma or unilateral upper temporal quadrantic loss of field on the same side as the affected nerve, the reason being that the fibres involved are derived from the lower nasal quadrant of the retina before they have crossed. In that case an image can be projected through the nasal point of the corresponding upper temporal field. As most of the nerve becomes implanted the field first spreads into the lower temporal area showing that the upper and lower nerve fibres are, implanted, gradually, to the posterior retina more slowly the nasal field shows information first to the lower nasal quadrant and finally to the upper. Usually before there is much loss on the nasal side, the scotoma becomes affected with the loss of central vision, unless previously involved as has been described.

Like the various stages include either a primary unilateral defect or paracentral scotoma, or a unilateral bilateral temporal hemianopia developing into a complete temporal loss, and finally extending the nasal field from below upwards with resulting blindness in that eye. The field loss is directly proportionate to the amount of process carried and also to the capacity of growth of the tumour. Valuable information can be obtained by testing the field to colour, especially red and blue, providing the patient is not seriously colour deficient, as it is practically always the rule that the loss of colour fields may be well as advance to that of what. Thus with an upper quadrantic total loss there may be a complete temporal hemianopia.

(3) Temporal hemianopia as already noted, paracentral process on the anterior portion of the chiasm along both sides of the optic, generally extends to more involved than the other and bilateral symmetrical defects as the response rather than the side. More commonly there is gross temporal loss on one side with a lesser defect, or which possibly associated with a temporal hemianopia on the other.

(4) In a lesion of the optic tract there is a very different picture, here the fibres from the nasal point of the contralateral eye have joined the temporal uncrossed fibres from the ipsilateral retina. In the best instance the entire part of the tract is compressed or stretched and those, having descended from the opposite optic nerve, produce scotomata or temporal defects at first very minor to the point of the nerve root. In this part

in this way the different pathways which the cell is traversing, from normal and then the rapid rather characteristic to the two abnormal and Wernicke's homonymous pupil reaction will be obtained. The amount of constriction of the pupil is felt in the dark as the two series advance and the reaction might be with a few periods of light. Actually it is worth more concern to find homonymous because you find here again symmetrical defects are the rule, the fact in the temporal field of the opposite eye being an absence of the line in the nasal field of the other. In drawing these fields, one should be made of note of the objects in the observations already made with regard to heteronymous apply with equal force here.

It is of course, reasonable to expect that primary lesions always involve themselves solely in one of these three subdivisions of the visual paths where the importance of visual acuity is so great that preservation of temporal fields, peripheral patterns can give much help by indicating which side of the field of vision was first lost.

Patterns affect by neighbouring areas and other adjacent affecting, the eye can find its direction. The third set to be the one most consistently yielded to. Usually, if there is affected it is particularly in one or more of the main central trunks supplied are produced less often the other trunks and splinter papillae are involved. The third nerve pattern is particularly of some help in diagnosis as the sixth nerve is much the commonest to be involved in extracranial lesions. The fourth nerve generally escapes, owing to its position intracranial space. It is usually stated that optic pattern occurs only in cases where the primary lesions has extended extracranially or where the growth is outside the sella but it appears possible that an intracranial tumour which has passed backwards and caused lesions of the posterior chiasm might compress the oculomotor nerve.

Pattern Changes.—Owing to the direct pressure on the optic nerve and the mechanical constriction of the subarachnoid space on the optic sheath from the cerebral meninges any rise of intracranial pressure will not be demonstrated at the same level and it is very unlikely that pupillostatic action in these lesions. The fourth pair involves a primary optic atrophy of a progressive nature. A slight degree of roughness, is not uncommon, especially in large growths, particularly due to some fluidness in the various sections in the various areas.

Progress of Visual and Field Recovery.—After relief of pressure and treatment, either by operative means or by spontaneous regression of a cystic tumour, the tendency is for both visual acuity and temporal fields to recover. Experiment has given a certain amount of assurance as to the extent of improvement in most types of cases.

Cerebral and Cerebrosplenic Lesions.—These generally present but where there is an intact visual field and only partial loss of the temporal halves full recovery can be expected. All defects tend to improve in the reverse

April 1, 1935.

Time	Temperature	Wind	Clouds
7:00	65°	S.W.	100%
8:00	65°	S.W.	100%
9:00	65°	S.W.	100%
10:00	65°	S.W.	100%
11:00	65°	S.W.	100%
12:00	65°	S.W.	100%
1:00	65°	S.W.	100%
2:00	65°	S.W.	100%
3:00	65°	S.W.	100%

August 11. Patient very comfortable. No action of late night headache, and got amorphous vomiting. General condition satisfactory. Continued with diet. No change.

August 12. General condition satisfactory. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 13. Tolerant. General condition satisfactory. Patient vomiting a little and stomach of late night. The symptoms are still satisfactory.

August 14. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 15. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 16. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 17. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 18. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 19. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 20. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 21. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 22. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 23. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 24. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 25. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 26. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 27. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 28. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 29. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

August 30. General condition satisfactory. Continued with diet. No change of late night headache and patient is consequently better satisfied. General condition satisfactory.

but small area in vicinity of junction point. Both legs (lateral) are used primarily open completely.

February 6 1938 R.V. 10⁰⁰ L.V. 11 M. same behavior. Right field has on, exposed to effects of upper canal (and may not opening) in lower canal area. Left deflexion maximum of about 100 mm. (about 100). This position will be maintained shortly but there is a fairly good possibility of increase of 10 mm. field of vision, although it is doubtful if such improvement can be hoped for in the lab. A report on the material removed at operation is attached. Possible certain amount of cloudy patches would also indicate some, some, having cells, with a few scattered macrophage cells. This would, and the blood vessels with some macrophage count mostly of blue and red blood cells. The tissue is a mixed substance of the anterior lobe, probably somewhat rapidly growing.

A NOTE ON THE USE OF THE KOMMANSKY STAIN IN THE TROPICS¹

By J. I. PARSONS, M.D., M.S., F.R.C.P.

Government (Meteorological) Project, French East Indies

Under tropical conditions the maintenance of the Kommansky stain (Gomkowski, Hansen and Wright) quickly deteriorates. In many laboratories a fresh supply has to be prepared every five to ten days, leading to much inconvenient waste and expense. Old supplies, even when employed with freshly prepared distilled water, not only stain badly but may stain both red and white blood cells blue with chromatin of proteins, also blue and indistinguishable from the cytoplasm. In other cases chromatin may stain locally blue or not at all, or a few phosphates may cover the preparation. The recommendations made to secure satisfactory staining are many, e.g. the use of freshly prepared distilled water or distilled water with the CO₂ boiled off or buffered with a phosphate or maintained with lithium or sodium carbonate by the use of a suitable indicator. In spite of these precautions the results are often unsatisfactory.

While in temperate climates the acidity of the distilled water is to be avoided, in the Tropics the acidity of the distilled water is equally important.

That the ordinary glass vessels in which water and distilled water are kept rapidly become in the Tropics is not fully appreciated. Most glasses are composed of soda glass and in a hot humid climate readily produce a film of sodium which which can be recognized by washing and be easily detected by the alteration in pH. Distilled water readily takes up the alkali with a consequent alteration of its pH towards alkalinity and the production of unsatisfactory staining.

The change does not, however, take place to an equal extent with

¹ Reprinted, by kind permission of the Editor, from the *Journal of Tropical Medicine and Parasitology* vol. 42, pp. 101-102.

—A very light (pale) Pyrex glass is usually stained 1 to 1.5 per cent. (water soluble part, $H_2O = 0.3$ per cent.) with iron oxides. It is free of nickel at 100 parts per cent. (nickel is rather difficult to detect, even if stained to a depth of 100 up to 1000 parts). It is not a common pyrex, and is ordinary glass 9-9511 pyrexless. Pyrex glass contains no heavy metals and no oxide of the magnesium-manganese group which are commonly present in ordinary soda glass. In the presence of these oxides Ramanometry shows analogous, very complex chemical changes and is more unsatisfactory for staining in tar-staining.

If distilled water be made every day to free marks from an ordinary copper well a stock may one day be kept in a glass-stopped Pyrex bottle. Some think the purity required for adding to any particular quantity to the stain may be removed (the stain (Lanthanum, Cerium or Wright) also kept in a glass-stopped Pyrex bottle and the quantity required when up with a glass stopper) and supply of stain will be found to give satisfactory staining results for as long as six to nine months, with the persistent addition of small amounts of methyl alcohol to replace that lost by evaporation. In practice here in the case of Lanthanum and Wright stains, the standard stain obtained from a reliable manufacturer is usually added in the required amount of methyl alcohol in a glass-stopped Pyrex bottle and after being well shaken is ready for use. It improves with age from about one week after preparation. Cerium stain bought in solution is a good substitute for except into a glass-stopped Pyrex bottle.

It is not necessary, as is generally thought, that the methyl alcohol used be absolutely pure and contains less. Methyl alcohol containing 0.012 per cent. acetone and 0.012 per cent. ethylglycol gives equally satisfactory results.

The following table gives the pH changes as estimated by the Hantzschian method, for which my thanks are due to Mr. Felix Barth of the Imperial College of Tropical Agriculture, Trinidad.

	After 1 day at room temp.	After 2 days at room temp.	After 4 days at room temp.	After 8 days at room temp.
1 cc of 1:1000 stain in 10 cc pH 11	4.50 pH	5.50 pH	6.00 pH	6.50 pH
1 cc of 1:1000 stain in 10 cc pH 10	7.00 pH	8.00 pH	8.50 pH	9.00 pH
1000 cc. soda water in 10 cc pH	8.50 pH	9.00 pH	9.50 pH	10.00 pH

Both Lanthanum and Cerium stains kept for eight days in an ordinary glass deep bottle and used with distilled water immediately prepared give satisfactory staining. If the stain be kept in ordinary glass and the

liquid either in Pyrex glass, the result will be crystalline, but in 10 tubes or to those obtained when both were sufficiently mixed in Pyrex glass.

Notes.—In 1. L. Pyrex refers to the fact that the *S. diffusus* only was in the three years in the Tropics, a long way outside of distribution—Tropics.

CLIMATIC RUBE (CHLOROBULBULINUS) RUBE (1911) (2)

BY ARTHUR GALLIVANT, D. D. (1911) (1) (2) (3).

One of the best exposures I had after taking (p. 10) *Opportunus* in 1914. Most on the Yangtze river, was to meet the death of a 774 *Gadus*—which was dying *chlorobulbulinus* disease (in some type) apparently regional glands in one of his patients.

The condition around my interest as it appeared to be different from anything I had previously seen in hospital. On further inquiry I was told that this condition was observed as a venereal disease was extremely common in China, and was to be seen on occasion in hospitals in the south west of the United States.

On returning to my ship I turned up my medical microscope library but was unable to find anything more than a most inadequate reference to the disease in one textbook only since when I have endeavored to find out what I could about the condition from the various hospitals on shore and *Monographs*—which one can see many cases in all stages of the disease.

The only cause I have for publishing these notes is that some doctor like myself may one day have a case of *chlorobulbulinus* throat on his and be rather at a loss as to the diagnosis and treatment.

DESCRIPTION.

The following description of the disease is taken from "The Venereal Disease" by D. G. Womans—he describes it as a venereal contagious disease acquired generally—commoner in warm climates due to an *alkalimicrobium* *chlorobulbulinus* virus, communicable to certain animals experimentally characterized by small, often transient, commonly temperature raised secondary lesions on the external genitalia followed by development in regional lymphatic glands and adjacent connective tissues of a characteristic sclerotic or chronic inflammatory neoplastic reaction with production in the majority of cases of multiple small foci of suppurative-increased generally with constitutional symptoms which may include headache, prostration, fever, toxicæmia, anorexia, loss of weight, rheumatic affections, and dermatoses.

The sclerotherapy in the early and is some much smaller proportion of females, is localized on the regional or inguinal-crests two groups of glands—going out to the condition known as *chlorobulbulinus* or lymphogranuloma.

supposed lymphatic, and groups, suggest that even so it is not necessarily the suppurative inflammation.

In the skin there is a great deal of branching of lymphatics and extra nodular infection is supposed to occur in most of widespread suppurative inflammation. In the past, say, acute.

Many historical references are recorded which appear to tally with the condition in Hunter, in his "Treatise on the Venereal Disease" (1780), describes below among various venereal sores and complicated by mercury and which he considers were probably syphilis.

Though the supposed venereal character may be, on account of the different structural disposition of the lymphatic system in the female, comparatively rare, there is now full evidence to prove that a typical suppurative condition occurs in women—though some cases remain uncharacteristic in extent.

PRIMARY LESION.

Local examination of the pustule, generally reveals nothing—but four types of lesion have been described as being the most common.

(1) A small lymphatic lesion in skin, similar to leishmaniasis in shape—sometimes multiple—the top surface has a well defined sharp edge, as surrounded by a reddened area but with only slight induration and no real ulceration.

The base of the ulcer is whitish grey in colour and has the appearance of a hole rounded hollow—deeper than a watch head by most cases. It is non-painful, painless and not tender to touch, but it emits a small amount of serous discharge, which on examination is found to contain no specific organisms.

The lesion is often transitory, heals spontaneously, and may pass unnoticed.

(2) Ulcerative type—with secondary infection.

(3) Nodular type—characterised by a change in appearance, but lacking the characteristic induration and no true formation.

(4) Central—with discharge in which organisms are absent.

The commonest sites for the primary sore are the external nares, glans, wall of a surface of the prepuce—but usually all signs of the initial lesion have disappeared by the time the patient presents himself for examination.

INCUBATION

Incubation requires incubation and the appearance of the sore, the incubation period varies between four days and four weeks—but the period between onset of infection and the swelling of lymphatics is even more variable and may extend from three to nine weeks.

SYMPTOMS AND HISTORY

The earliest symptom is heat and stiffness in the groin on walking, this is followed by swelling.

A single discrete enlarged gland may be found, which is movable,

slightly tender on pressure, and accompanied with very changes in the overlying skin, and very numerous, resemble the glands of early syphilis, then, about reaching a certain size, the gland swelling very intensely and the process seems to be out of its lower part, the sides get fixed to the skin which takes on a reddish-white tint. Next, the skin goes shiny and tense and later multiple areas of ulcerating appear and when these process breaks down the characteristic multiple fistulous openings appear—as opposed to the chancreiform lesion with a large single opening, any new matter which may form goes through the same process.

The deep anal glands in the pelvis become involved but do not break down or suppurate. The condition may spread on down into the rectal lymph nodes producing many fistulous openings and a great deal of scar formation. This is particularly common in women owing to the direction of the lymph drainage in the female.

The typical case is seen in hospital before details formation is a mass with a central adherent hard mass in one or both grooves, deeply fixed to the surrounding skin above and the deeper structures below—the swelling is usually the size of a two mace egg, elongated in the line of the sigmoid ligament.

When the glands break down, multiple lines of suppuration find their way to the skin surface and again by multiple fistulae—the number of these fistulae vary between two and as many as twenty and are pathognomonic of the condition.

There is no elevation about the mouth of the fistulae—their edges are soft and not indurated—the skin is not undermined—there is no granulation and no tendency to phlegmon.

The discharge consists of small amounts and consists of thick opalescent yellow white or greenish, round brownish pus which is difficult to spread on a slide.

Constitutionally the condition should it go on to suppuration, results in fever of the remittent intermittent, or even the typhoid type. Frequently rising as high as 102° F and may persist for weeks or even months here.

There is also moderate loss of weight, pains in joints and muscles, headache and general ill-health.

Pathogenesis

Blood Changes—There are no such matters as marked.

Stained smears—The pelvis as seen in smears microscopically seems resembles that of subcutaneous and abscesses, granulation tissue with areas of necrosis capped off by palisades of epithelial cells, few cells or large quantities, giant cells and much broken down material.

Microscopically the gland mass on section and stained consists of a conglomeration of enlarged glands glued together by plasma pericycrosis, this may be a simple inflammatory and specific reaction, or the disease

processes have spread from the gland tissue into the surrounding tissue mass, with resulting hemorrhages, edematous swelling, infiltration and desiccation—changes resembling those occurring in the glands in cancer.

Five + 10 days—In 1930 Five introduced a species characterized test which has now been confirmed by other authorities.

His technique is as follows: A suppurating lymph node not yet opened in a patient suffering from lymphogranuloma inguinale and also has not had syphilis or gonorrhea, supplies the requisite material.

The pus is removed aseptically by needle. One part of pus is mixed with two parts of normal saline; this is then put upon 95 cc. ampoules and heated in a water bath to 40° Centigrade for two hours and twenty-four hours later for a further hour at the same temperature.

It is then incubated for reaction, about the size of the forearm and covered waterproofly, 5 l.c.c. of the antigen, and a corresponding amount of normal saline into the other arm at the same time carefully avoiding a control.

In forty-eight hours there is positive reaction, consists in the production of an infiltrated inflammatory demyelinated area 9.5 cm. in diameter—the infiltration frequently spreading beyond to a greater area than is at first apparent by observation alone.

In the center there is, frequently, a small area of necrosis and surrounding it a red zone.

This reaction is positive throughout life.

DIAGNOSIS

Given a patient with an inguinal adenitis following a venereal genital lesion, the possibility of lymphogranuloma inguinale must be kept in mind.

A large mass of prominent nodes occurs or later during themselves to the skin which takes on a violet tinge is characteristic of the condition.

DIFFERENTIAL DIAGNOSIS

(1) Lymph reactions is characterized—no acute painful adenitis—cellulitis and boils; found with one limited area of necrosis. Durray's reaction should be found and also the specific for Wassermann intradermal test.

(2) In syphilis characteristic indurated-like consistency of the glands which are hard and painless and do not break down unless secondary infection occurs; and primary ones with spirochetes and the Wassermann reaction.

(3) Erythema + desquam. intertrigo + leukoplakia plaques, in leucorrhea, scrofula and pyogenic infections must be excluded.

TREATMENT

Spontaneous resolution and recovery is not uncommon and further there is no known specific chemical therapy; agreed, but the following list of treatments are those which have been reported on as giving efficacious—

(1) 1, 1, A, B (total) 300, 300, 300 and 300 ulthine (average only at four days, respectively, combined with separation of the ulthine (a) and (b) in results) is found to be essential.

(2) Voluntary or a 2 per cent. only suspension (in 100% 1 unit and 25 per cent. by larger doses) the suspension starts with an evening dose (from 0.2 to 1.0 gram) and is continued until 1.0 gram. have been given (suspensions twice weekly). In early cases this treatment appears to prevent suppuration and burning down, and in later cases quick drying of the furcula. It is advocated by Kossfeld (1934) and Lohs who found it relatively non-toxic, though temporary ulceration is with granular nests may occur. Contraindications to its use are renal disease and dermatitis. Sulphur is bad on the mucous membrane of the mouth and on the skin and good nursing and the local application of antibiotic ointment and iodine to the nasal cavities is advised.

(3) Tincture of iodine 4 per cent. intravenously starting with a dose of 5 cc. followed by 5 cc. three days later and subsequently 10 cc. twice weekly until a cure is effected, as recommended by Deitchman and Vaccaro.

(4) Sodium iodide or 10 per cent. solution with doses of 10 cc. intravenously has also been recommended and is regarded by Kossfeld and Lohs as a specific.

(5) Two other preparations, both of which are used in the hospital on the ward, are Dioxone and Iodo.

(6) Steroid will only use or two superficial glands which are suppuration be removed there appears to be no risk of elephantiasis and after careful dressing the wound may be closed by sutures covered with an Iodo paste dressing again which is not touched for five days, at the end of this time it is removed and as most cases the wound is found to be healing by first intention, in addition the patient is given a course of selected antibiotics and is in complete rest.

DISCUSSION

The condition appears to be a granulomatous entity involving lymph nodes with an extension of infection into vessels resulting in chronic leuko-dermatitis with suppuration.

It is due to a fibrinous mass incriminated experimentally to some of the lower animals. There is a specific cutaneous reaction which persists throughout life and the condition will respond to a combination of suitable antibiotics and by selected cases, surgical extirpation.

HOSPITAL LIGHTING

D. L. F. HIGLAND, M.B.E.

My experience in this work has dealt chiefly with Isolation Hospitals, and I shall confine my remarks to wards and operating theatres.

Speaking generally there are three headings under which all work from planning, designing and equipping falls—Efficiency, Comfort and Cheapskate. The word Efficiency should include in its meaning the word Economy, in order that that great bugbear, 'False Economy', is given no chance to appear and wreck the work. The most efficient way of doing anything is not planning a layout to dividing the positions of electric light points should be the most economical way, not necessarily the cheapest way, that would have another meaning.

I shall now take the planning of the ward. The problem here is to secure patients of various degrees of sickness, and the tendency in hospital design is to make the wards smaller and smaller.

In hospitals for infectious diseases the main special requirements (and these are incidentally "laws" made by the Ministry of Health which cannot be departed from) which differ from those of the General Hospital are that no beds must be nearer together than 12 ft.—corridors having 144 sq. ft. to each bed; that good observation from the Duty Room is essential and the wards to be cross ventilated. Although opinions differ the latest methods of ward planning are not to plan the beds at right angles to the walls, but parallel to and away from the walls, the beds in most cases being backed by a metal and glass screen.

Although this does not alter the actual way of lighting of the ward, it does considerably change the whole nature and problem of the lighting sources and equipment.

Openings have proved to be the best method of lighting the old arrangement of beds. Dr. James Watson in an address published in 1932 from the *Proceedings of the Royal Society of Medicine* states that "wall lighting" is preferable. When each bed was backed to the wall a bracket was necessarily placed over each bed, or if so called "economy" was considered paramount, one bracket light to each two beds. It was then a question as to whether these lights were to be fixed with lamps continuously alight, either to do the duty of lighting the whole ward, the patient in bed or not, or whether, and the danger during the period of wake. These jobs of very different colors.

¹ A paper read before the General Conference (1936) for Architects arranged under the auspices of the Electric Lamp Manufacturers' Association of Great Britain Ltd. and presented here by kind permission of that Association and of the author.

Mr. Charles. Request another authority on this subject and make the following statement to the reader: "There should be a considerable of dissipation, the light must be visible but absorbed in assistance of 'diffusion'. He advocates a standard of 1 1/2 foot candles suggested from ceiling lights not more than 1 ft. from the floor so that they can be easily cleaned. Speed than a higher average would be undesirable on account of glare.

My own opinion is that the new method of placing the beds parallel to the walls has the additional advantage of solving this problem, in fact, I have designed at the Toronto Infirmary Hospital wards accommodating ten beds and in only and entirely by three ceiling pendant lights, the position of these lights being, as I will show, perfectly comfortable for the patient in every way. There are, of course, the addition of plug points for flower lamps, washers and power lavatory units and. The bed back as this particular scheme is one example one end fixed at one end to the wall and to the floor at the other, for the beds to be arranged against the avoidance of anything, except the most simple, being of great importance when infectious diseases are feared. These bed bases are more akin to other hospital rooms of more sophisticated design which have additional bed lamps instead of three main overhead for the patient.

In determining the amount of light or foot candles required, consideration must be given to the tone and texture of the floor walls and ceiling. It is now generally recognized that it is better for day to be seen and not hidden and as light colors are always more acceptable and cheerful a reflecting tone for the walls and ceiling may be accounted for. The floor is generally a dark black flooring which is worn and dark in appearance and it should not be so highly polished as to reflect the light.

The three pendant ceiling lights in this ward are 5 ft. 6 in. from the floor and have 250 watt lamps which give a foot candle on a table immediately below and 1 1/2 foot candles to each bed. I am told by the nurses and patients that this scheme is completely successful and that the illumination is both visible and cheerful the credit for which is very largely due I consider, to the fact studies that the designers of modern lighting fittings have made quite recently, when without having in mind one's lighting in any inherent method which is costly and can always "leak", but by using ordinary diffused bulbs and spherical globes, all uncomfortable glare can be dissipated.

To come up with patients opening of points and good choice of fittings I believe that a higher average and increased amount of foot candles may be used on this new method of placing the walls.

The lighting of an Operating Theatre should not necessarily be measured up to the reader's "Shadows on Lamp". The theatre is a room about 20 by 25 ft. in area with one wall of glass from 4 ft. high, each window is at all except the operating table, all other fixtures should be, I do not say always are, in the back up and darkening rooms.

Here again better is more light, the difficulty is to be considered. A large % of light is being used to give the maximum daylight into the room and yet even in quite bright days you will find the surgeon turning on his shadowless lamp.

The flooring materials on the walls and floor are generally expensive to take with Kerolan cement above and the color is generally a light green opalescent green or a sometimes called white is supposed to be a green most useful to the eyes. And on some hospitals all the towels which are used on the operating table are a light blue or green for the same reason that the surgeon while operating cannot have his eyes glued to the table the whole time, and in daytime when he looks up he is not met by the light on the walls which is more bright and more reflecting than that on the table, so that when he looks down again the shadows which the surgeon is working on looks comparatively dim. He then asks for the artificial light as he turned on. Eye strain is the one thing which surgeons still complain of, and everything that is possible should be done to try and remove their comfort for the important work. What affects the vision of the eye is the difference in brightness that it meets during the hours of operating that it sometimes has to get up with. And on the foot candles put up by daylight is sufficient for most kinds, excepting those operations where spot lights have to be used and no artificial light thrown on the table is now so good, if not better to work from, it should then be possible to design a theatre where the strain on eye vision has been practically vanquished.

First of all, I believe that the tone and colour of the floor and walls which are generally seen in the newly constructed theatres or hospitals in this country are too light, and I believe that this so-called opalescent green is too bright. Most of the theatres I have seen abroad are finished with a greyish very much darker in tone. It looks more vital and the light is focused more upon the operating table. This should provide better working when daylight is used, and normally to work comfortably without systems it is absolutely essential to have a constant intensity of illumination and a uniform distribution of light throughout the whole theatre. Fluctuations in intensity such as flickering and glare, as well as a direct unobscured illumination which gives deep shadows have a distracting effect. In modern installations it is furthermore important to avoid any marked variations of heat.

The two most general ways of lighting the theatre table are (1) ten or more lamps with parabolic reflectors placed at a height of about 12 ft. from the floor, and (2) the shadowless lamp.

No. 1 will give an spectrum of illumination on the operating field. In No. 2 all the light rays emitted by the lamp are reflected by mirrors in the form of an inverted conical beam of light which is unconstrained on to the operating field, and provides the deepest surgical vision. All shadows are eliminated and there is a complete absence of all glare. Also elimination of heat. For tropical climates, a special heat absorbing glass

cylinder is fixed within the lamp. Owing to its heat, the glass produces a daylight effect, whereby natural colors values are retained.

There is this lamp to be the most popular with surgeons, but there is some reason where the other method is the only alternative. At the new Eye Hospital in New York, there is a clever arrangement of spot lights, now based on an equally clever method of dealing with an abundance of patients. Operations are often performed on the eye when the patient is conscious, and in any case no light should be in the patient's direct field of vision as he looks upward. In this particular hospital some of the operating theaters have no windows, except skylights; the main one (1,000) feet can be hinged fully or partially forward upon the table by a series of various pneumatic units such as the railway, within the circle of light the ceiling is open but glazed over so as to allow natural observation to be noted round the dome looking directly over the table. This surgeon can speak to them through a microphone. But neither of these two methods solves the problem of uniform distribution of light throughout the whole theatre, as a rule there are no other lights in the theatre except when there are over fixtures such as lantern houses, then in such lights are used and these, even if they are given high average beams, are only spot lights of considerable diameter.

A better solution, I think would be that, in addition to the table lamp, an or more spherical lamps should be fixed to the ceiling to flood the theatre with foot candles approximately that of the table lamp itself. The surgeon does not have to look upwards and the difference in brightness would then be negligible.

Mr. Hughes, who I believe is in charge of the whole of the electrical apparatus of St. Bartholomew's Hospital, has suggested that in addition to the table lamp a system of panel lighting should be constructed all round the theatre. Then, I think, might go some way to a solution but the corners and the reflections all go to make that lamp, unless the glass panels were made convex and the approach to the lamp was made from outside the theatre and then would take up too much space and glazing.

Another solution to this problem would, I believe, be that of the whole of the ceiling could be designed as one large skylightless lamp which would light every square inch of the room equally, and if very problematic here you tell me whether this would be a practical and not altogether too expensive possibility, I shall be very much obliged. Anyway, I suggest that as a point for discussion.

REPORT OF A MEDICAL OFFICER ON AN EXPEDITION
 AGAINST THE ARAB MARINES IN SYRIA IN 1892

Communicated to the American Association, J. H. PHILLARD, M.D.

"This journal is apparently a rough copy of the Journal of Surgeon J. H. P. PHILLARD, M.D. when attached to the Royal Marine Detachment, 2nd Regiment, March 1892. The account of the military operations appears to be quite accurate according to official histories of the campaign, and the treatment of the sick and wounded, though only briefly referred to, shows an extraordinary ignorance with present day methods. Parts of the diary were evidently copied in a great hurry, which has necessitated the correction of some spelling and punctuation mistakes, but otherwise it is given exactly as written. The year, throughout, is 1892."

"Was appointed to Marine Detachment on June 28, and joined H. M. S. *Gibraltar* at Portsmouth on the 29th. Sailed at 8 p.m. for Plymouth, arriving there at 8 a.m. on the 30th. Here the Plymouth Detachment of 125 officers and men came on board, bringing the total of the detachment up to 340, constituted as follows:—

Royal Marine Artillery	160 officers and men
H. M. S. 2 Companies	200
" " " " "	100
Medical Officers	100
" " " " "	10
Total	560

"Sailed about noon on 30th for Gibraltar, where we arrived on the morning of July 4. (On July 1 two men of medical were drowned, one was hospitalized every second day during voyage.) Found the Barracks and Detached Hospitals at Gibraltar. Here we met James Mallin in hospital with myeloma and entered the body of Ed. Payne. Transferred to H. M. S. *Tenace* and sailed the same evening for Malta, then to Crete, where we arrived on 9th. Here 10 cases were sent to the R.N. Hospital for treatment, 5 suffering from gonorrhoea, 2 from secondary syphilis, one from boils and one from psoriasis. The Channel Fleet sailed yesterday with two regiments on board for Cyprus. On the 11th heard by telegram of the bombardment of Alexandria, and sailed at 5.50 p.m. for Larnaca, where we arrived on the morning of the 12th. Here we heard particulars of the bombardment and that our presence was urgently required. Sailed for Alexandria at 1 a.m. on the 13th, and arrived there at 8 a.m. on the 17th. While still a considerable distance off the burning town could be distinctly seen as well as the clouds, light of the fleet reaching the shore. It was truly a magnificent sight to see the whole sky lit up by the red glare."

"Everything was put ready for landing, and in the afternoon the

building converted into an empty cotton store at Galsarr which was soon made into comfortable enough barracks. The greatest drawback were the numbers of flies from the cotton bales, mosquitoes and then, which made rest by day or night almost impossible except to the most hardened. In Anshuld Akers had arrived in Galsarr in forenoon on the evening the 24th and 25th landed from Coastal Boat. On the 25th arrangements were made for establishing a hospital on another large cotton store close by our barracks. A large party was employed all day sweeping and scrubbing and endeavoring to destroy the numerous flies by carbide and which was freely sprinkled over the floors and walls. This store opened to the street on three sides by large door ways and numerous windows while the fourth side was surrounded by a large door with another smaller room. The north side constituted the kitchen and was freely exposed to the street on bottom which generally sat in in the evenings. Laundry for the hospital and troops were dug in a waste space on east of the hospital but before it as level. Unfortunately there had to be dug to windward as there was no other place that could be used for the purpose.

On the 25th Surgeon Major Hensley, J. M. D., arrived and took charge of the work on board H. M. S. Yarrow which was turned into a hospital ship for both the Naval and Military work. Found packed filters in the main as the water is very impure, having been cut off by Akers. The following is an analysis, made on the 26th of the water from the Mainmolech canal from which the supply of the town is derived: hard, some calcium, light earthy brown, taste earthy, chlorine in great quantity free, trace, calcium, trace sodium and some mineral, nitric, organic matter, none. From the above it would seem probable that there is some truth in the report that Akers has turned sea water into the canal. As the level of the water in the canal is falling the supply is cut off except for an hour in the morning and an hour in the afternoon.

"July 26 Very busy getting the work arranged in facilities for the work in the hospital. We have a plentiful supply of bedding, medicines, medical instruments, stretchers and surgical appliances, so the work are comparatively comfortable. Two sergeants, two corporals and four men were told off as having Plymouth as hospital orderlies and by the time have become very handy and useful. There is a great deal of diarrhea among the men. Most cases yield readily to a dose of castor oil followed by morphine and and opium, in cloth and opium.

"27th Suffered severely from an attack of diarrhea myself which completely prevented me for the day. Much better tomorrow evening having continued again to now that all day. Medical arrived in the evening with the 4th and 5th battery of Artillery with 40 gals. guns.

"28th Lt. Colonel Lay was appointed and sent home on Medical.

"29th An expedition was made into the Anshuld quarter of the town near Pongay's Bazar to search for water. Nearly 4000 of our troops were out but nothing of consequence was discovered.

^a *Staph. aureus* suspended in 0.1% Tween 80.

JOHN W. Smith, building rapidly and is very important, is due to be located when possible and altered before long. At 4 p. m. 3000 dollars were raised to accompany the second group and a party of Miners and 100 men; 100 men to report the last 1000000 dollars and report another 1000000 dollars. The company were employed within 10000 yards of the mine and mine and are all expected to be well. However, the work has been completed in 10 days and we reached the mine in 10 days on the 30th.

5 The Durricks sometimes vary among both officers and men. There are few stripes and much color on the last two fresh ones. The accompanying notes and picture portray Durricks, recently and somewhat fatigued, and probably at the commencement, after a few hours the stripes show somewhat but the Durricks continue accompanied by white, pink and a touch of magenta about the abdomen. The streaks are nearly always watery and of a light yellow color becoming stained with blood in the most severe cases. The attack generally lasts from 12 to 18 hours and leaves the patient in a debilitated state for some days afterwards. No special treatment seems to have different results under different cases. A dose of castor oil with opium relieves the pain at the commencement and other and opium at sleep and tremors where the vomiting afterwards helps and now opium in Compound Camphor powder relieves the distress. Attention to the diet is most essential and rice water, arrowroot milk, and beef tea being only allowed. When the attack has passed off a few doses of quinine or salts of quinine and iron, with such if necessary, restore the strength and appetite. In some cases, just before the termination of the attack, there is a great flow of bile into the stomach.

August 1. At 3:30 p.m. 2 companies H.M.B. and 1 company H.M.L. (about 450 men, were ordered to Cleburn station to form a portion of 1 train to advance beyond Malinta point to make a second surprise attack of 4 hrs. a position. When Gidding and myself accompanied the battalion taking with us 6 stretchers, 1 case of water, bandages, first, second aid and one field case, 11 stretchers fastened under the wheels of 1 staff sergeant's 1 hospital wagon, 1 company and 30 soldiers. On arrival at the station we opened an empty goods train, in the last compartment of which, a covered tunnel, the medical appliances were placed. The names and numbers of the first named the armed men, which proceeded next, being with them 1 second for H. Brown, was 40 yds gun mounted on the forward truck, and two 3 yds. field gun, under the same arrangement, ready to be loaded on when required. About 350 yards from Malinta point the enemy had destroyed the line, so the train stopped and the men formed up under cover of the railway embankment and advanced in columns towards the enemy's position. The headquarters located on the 2nd 3 yds. gun, and dragged them along the embankment into a good position, and all who could be saved from the train, not about 100 men in a line as in advance.

the 40 pdr into action. Sergeant Giddings and I, each attended by an orderly, with stretchers, bandages, hot water, bandy, etc., advanced with the machine having Staff Sergeant Mahon in form a shooting station by the train and place the wounded in the trucks. As soon as we advanced about half the train the enemy opened fire on us with shell, the first two bursting about 80 yards behind our men. But, as we were soon well sheltered by the embankment, he directed his fire against the train and the men engaged in repairing the line. This practice was good but most fell short and, as the road was within the enemy were using percussion fuses, the shells penetrated some distances before exploding and consequently did little damage. In the meantime the 40th and 4th with two or six 9 pdrs., under Col. Dorman, were advancing from Besselt about a mile to our left, and soon opened fire with their guns. Shortly afterwards we heard their reply to the enemy's machine fire. One two 8 pdrs. now got into action and made some capital practice, soon followed by the 40 pdr which had been advanced on the train and completely silenced the enemy's battery. When our battalion had advanced to about 700 yards the enemy opened a hot machine fire on us, but our men were sheltered by machine guns until within 400 yards, when they commenced shelling across the railway viaduct. Just at this time a number of our men were hit and Sergeant Giddings and I had our hands full. The wounded were carried back to the train, being partly sheltered by the embankment though two of the stretcher party were wounded while performing this duty. Food was kept up vigorously, our men still advancing for about two hours. When it began to get dark they were ordered to retire by alternate companies, which they did with great readiness though exposed to a very heavy fire on the open from the enemy's reinforcements which had arrived by train from Kailah-Dura. The machine had advanced to the enemy's position and had taken several prisoners who were marched back with them to the train. First dressings were applied to the wounded in the field by Giddings and myself, and those who required it were relieved by Staff Sergeant Mahon when he received them at the train. Only two men of Machine Company, J. Bradley and I. Whinn. The luck was supported by a rifle on the field which was so adjusted in the railway track and turned so, as to make spot. The hypodermic injection of morphia was used freely to all who suffered pain. By 8 p.m. all were in the train which returned to Alwardeen. On arrival at Galsana station I was dispatched to the hospital to make preparations for the reception of the wounded and to send down all available stretchers to carry them from the train. I had both made down and had tea ready by the time the wounded began to arrive. All were properly dressed that night with blankets and the blankets being put up with spirits etc. Each man there had some hot tea and a plentiful supply of barley water and rice for the night. Hypodermic injections were given to those who suffered much pain and a watch placed for the night. The officers of the A. M. D. very kindly waited on us in every possible manner and enabled

us to have the last man comfortable for the night by half past twelve. The following is a list of the killed and wounded. — [This list is not given in the diary — E. F. P.]

August 6. Re-dressed some of the wounded. At 3 p.m. had a council taken with the A. M. D. officers on the case of J. Bradley and decided to amputate the thigh which was done by Staff Surgeon Milson by the amputator method. Made arrangements with the interpreter for the supply of fresh milk, we used eggs daily for the sick. Water used in hospital was all cleaned by them, of which we purchased a considerable supply.

August 7. Spence died at 8.30 p.m., Brand and Wren both kept on recovery. Bradley doing well.

August 8. Brand died at 4 a.m. Wren died at 4 a.m. 3.5. Dances arrived with 101 R.M.A. and 414 R.M.L.I., also First Surgeon Libberville and Surgeon Elliot. Dances started at 1 p.m. with messages for Fort had sent 30 wounded to Tinnah.

August 10. Jones died at 1.50 p.m. Continued water supplied by trough at the rate of 5 gallons per man, the road water to be used only for washing purposes.

August 14. Household Cavalry arrived.

August 15. The battalion received orders to embark to seaward tomorrow, destination unknown. During our stay at Akroasima the average temperature was about 70° the highest being 84° and the lowest 52° F. our hours generally ran at about 4 p.m. which made it very much cooler, though the thermometer seldom fell more than five degrees. The heat at night was the men trying and what with mosquitoes and flies could sleep was nearly impossible. Half the battalion were on outpost duty for 18 hours at a time under the command of a field officer, a medical officer going out at night and sleeping with the men guard which had its quarters in a store by the Maun which canal and was relieved by succession, mile out. All the different guards were rotated by a medical officer twice a day, and a stretcher was kept at each station in case of necessity.

August 18. I was ordered to embark with the R.M.A. on board the *Koroon* while Staff Surgeon Milson and Surgeon Gillingham accompanied the R.M.L.I. to the *Albatross*. Very busy all day getting stores etc., on board.

August 19. Sailed at 4 a.m. in company with a large fleet of transports and two off-war *Acrobatic* gunboats.

August 20. Entered the *Isle Laval* the first ship about 9.30 p.m., and after going on shore several times, went first to the entrance to Lake Tinnah and failed to get bar off. Very hot in the canal. Prepared to land on lower banks about midnight.

August 21. Landed at 1 a.m. leaving 3 men on board. The men only took a short part of loads, threw away pieces of soap and their great coats in their valises which were to be carried on the head and left on the beach with a guard until transport could be found for them. Each man

earned 4 days leave on account of his harassment with his bad leg. Medical stores consisted of 1 field case and 1 stretcher. Marched out to the Chaboyer police, arriving there just at daylight. Had camp built on bare ground when orders came to march out to Mafico at once. A distance of about 7 miles from where we then were. Just before leaving Mafico we were joined by the R.H.A. who had come out on the Durio bringing the strength of our battalion up to 120 men. It was a hard trying march through the wilderness and without a breath of wind and under a burning hot sun that was felt not from exhaustion and had to be helped by the stretchers party. The 54th and 64th regiments accompanied us on this march. At Mafico a temporary hospital was located on the railway station where the military surgeons and I remained all summer. During the first six weeks for them. Several of the soldiers suffered severely from dysentery and would have died without prompt treatment, but the Mafico though they had not tasted food since the previous evening, seemed to stand the exposure and fatigue well. Mafico was occupied by Axis enemy yesterday but they had been evicted out of it by H.M.S. Queens the guns being fired by company. Quantities of military stores were left in a house which had been disabled by a shell, and there were ample proofs of the mastery of our line.

August 22. Battalion searched out for a reconnaissance in the evening on the enemy's supply road some 10 miles away but returned at about 2 hours the horses being scared.

August 23. Two German Warboys captured and gave orders for us to advance only to capture. Several prisoners were brought in. Heard that the Indian Division had defeated the enemy at Chaboyer. The water of the fresh water stream is very dirty and is falling rapidly. Took 11 men here unable to march with legions tomorrow.

August 24. Marched at 4.30 a.m. I had secured a mule to carry the field case and several tin water bottles which I had taken from Axis stores at Mafico. This was the only pack animal with the Battalion. Two R.H.A. 25 job guns, the Household Cavalry and 54th regiment advanced with us. About 7.30 a.m. it became very hot and, as the road was wet and loose, several men had to fall out. I ordered the worst cases to be carried on the stretchers and the others to be relieved at their camp, ammunition etc. I was some 100 yds. behind the battalion and determined to leave them behind, as found some shells among the rocks by the canal and left them there with Axis soldiers. About 8 a.m. the enemy opened fire on us with 15 guns from some hills on our front (El Maghar) and in our right, also a heavy artillery fire. Result of the fight. [This is not given, but from the summary given below, El Maghar was evidently captured and occupied by our men the same day — F.H.P.]

August 25. Advance at daylight. Our artillery opened fire on the enemy as soon as it was light enough to see, and some drove him out of his positions, which we reached at about 10 a.m. This was Tel-el-Mafico and was strongly entrenched and had been defended by 4000 men.

and 12 guns. We had taken it with 2 guns, Household Cavalry, 6th D.G. R.M.A., 4th, 6th, 8th and 10th. Then I ordered a canal with two large iron water bottles. We commenced here at 3 p.m. during which time the French, and R.M.L.I. came up and I engaged over to the R.M.L.I., 1st, 2nd, 3rd, 4th, 5th and 6th. They were going to the R.M.A. At 5 p.m. were ordered to advance to Malakka, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th and 12th. We had been taken with 7 guns and 60 mules of war stores by our horse artillery and cavalry during the afternoon. We arrived there (the French remaining at Tel-el-Mahuta) about 3.30 p.m., hungry, tired and thirsty and were sufficiently worried by the cavalry who were expecting the enemy to make an attempt to enter the camp and as their horses were utterly done up they could not have entered the camp without infantry. They gave us nothing out of the camp.

August 26. Spent a quiet day and let the men rest. The R.M.L.I. had marched all the way from Jerusalem in 24 hours. Though the distance was not great it was a very tiring march, as the men had nothing but dry bread to eat and cold water to drink and the sand was soft and heavy to walk through. In the afternoon got water from a hole in the enemy's wire in the distance. They, however, did not advance. The R.M.A. advanced.

August 27. Colonel Jackson and 7 men were sent to hospital suffering from dysentery. I received an order from the General, as junior Medical Officer of the Division, to join the hospital at Malakka railway station under Surgeon Major Hume Esq., 1st Life Guards. Arrived immediately and found plenty of work to be done. Surgeon Pope, R.M.D. and 4th R.C. were two field surgeons joined to the hospital. Some 100 sick officers and men in hospital, in midday tents drawn by horses, among them all the sick officers. The canal water was very dirty, many dead were pulled out of it.

August 28. Very busy all day at the hospital. The troops stood under arms all day ready to march at a moment's notice, the enemy was known to be a great force a few miles distant. In the afternoon being commenced at the front and the R.M.L.I. and cavalry marched out to reinforce the R.M.A. and 4th with 2 guns and 2 R.M.A. guns, were holding the canal back at Malakka. I was off. About 4 p.m. the engagement became a mass, the enemy pouring shell and rifle fire into our small army which was threatened with destruction by overwhelming odds. They, however, held their own bravely and at sunset were driving the enemy back. The R.M.L.I. soon afterwards moved and took part in the engagement. The cavalry made a detour and about 7.30 p.m., by moonlight, charged the enemy on the flank and completely routed them with great loss. The heavy rifles of the Life Guards and 1st Hussars doing great execution. The R.M.A., 1st, 2nd, 3rd, 4th and 5th wounded the R.M.L.I. now, one total loss being about 100. At Malakka, where I was with the hospital, it was thought necessary to keep the position to see the enemy should make a detour and attack

our rear. Prepared to start early in the AM. (September 28 January) and trucks and horses were all ready. At 10:00 AM. I went out into the camp at Tel el Mahuta. About 15 pm. wounded began to arrive. (some) I did surgery, but some were arriving and dying soon.

" August 20 At 1 AM they (together with the wounded) were all, were sent to the rear by train. I accompanied them to the Tel el Mahuta where they were handed over to the field hospital. (Some of them were wounded) and transport corps, who had been moved over to the Tel el Mahuta, had on the journey down, he had lost a great quantity of it all before he was dressed. Reached Tel el Mahuta at 1:30 AM. (I gave) Surgeon General Elva gave me a box of medical supplies and a section of hospital for use as the hospital at Mahuta, and I managed to get them placed on an ammunition wagon which was about to start, with a conveyer for the front. Reached Mahuta at 2:00 AM and found plenty of work to be done with the sick and wounded and also wounded prisoners. There a noted Arab soldier all day while my men were worked.

" August 21 At night came up the line for the first time in the train but of them and provisions. A hospital was established at Jerusalem suffered severely from diarrhea.

" August 22 Diarrhea and provisions so bad that I thought I should have to be sent to Jerusalem. Two trains passed in the front.

" September 1 Night but still very weak. D.H. Elva requested the hospital and left two even of medical comforts.

" September 2 Sent wounded prisoners to back hospital.

" September 3 Back up the hospital.

" September 4 Arrived by train from and reported the H.M. Elva at Jerusalem. When they had a comfortable camp with a view of the mountain of their line which were brought up by train. Found out but was not glad to have a thorough change of clothing. (I) Surgeon Major was down to Jerusalem for medicines as the supplies from the field hospital were not sufficient.

" September 5 A very hot day. Unfortunately my thermometer was broken in my tent, so I have no means of registering the temperature. Mahuta has found the average temperature under double tents to be 17° some after daylight, rising to 36° by 11 AM and down to 16° at 2 PM. Now that our gear has come up we are able to start the water, which we had to drink muddy before.

" September 6 Saw nearly 80 men at 2 AM. At 6:30 AM, just before breakfast the baggage fell on wounded followed by the double. The baggage started out with the rest of the baggage (with 1000 lbs. and 1000) and it was found that the enemy were advancing on great line in attack, our camp. Surgeon Gilding and I went out with the baggage taking 2 machines per company and made with field notes first baggage, heavily with spare machines, and our water moved with us. Then Surgeon Gilding remained in camp. Advanced across the desert in the direction

of Tatoi Kaba (about 1 mile) under a heavy shell and machine fire the whole time until late in the afternoon. The men covered their fire till dark at 8:00 p.m. and then a change of the ground when they opened a hot fire on the enemy, causing 1 or 2 considerable hits and driving him back. The enemy took two of the enemy's guns and the 68th retreated in a hasty manner. The 8th A advanced on the north side of the road, but did not get into action except those men which retreated on a side way to the 3rd and 4th regiments. By 11:30 a.m. the enemy was in full retreat and no remained in possession of the field. Remained out till 1:00 p.m. when he left the battle back to camp. The last machine gun and some of us had to stay back but before starting ordered some fell men such a hurry they had not even fired their machine bullets. A number of men were injured during the march back to camp, all of whom were carried to the field hospital. The stretcher men deserve all praise for the way in which they performed their duty in this engagement. There had fully 5 miles to carry the wounded, which they had to do through heavy mud, but they did not waste a minute at the hospital but started immediately for the front again and were on before many those who fell out on the march back. The camp was reached at 4 p.m. The following is a list of the wounded (not given as duty - E H F). Small baggage of those returned from forward in afternoon with medicines and stores which he shared with us.

* September 12. Several hospitals and Garfield came up, also several other regiments.

* September 13. First Lieutenant Bush, Colon and Kennedy to hospital. The whole force here ordered to return all baggage to 4th M. B. 5 p.m. to make bivouac camp and to parade on the north side of the railway at 8:30 p.m. Inspected men and left with behind. Marched about 1 p.m. towards Tatoi Kaba along all the stretches fell men and worst appearance with us the rifle and some being used to carry them and also water. The night was very dark. About midnight we halted and lay down for 2 hours. The General (Graham) told us we had to occupy the position at the point of the hospital and that was a shot was to be fired.

September 13. Continued marching in perfect silence all through the night. Just before dawn we formed in line and advanced rapidly towards the enemy's position. At the same time a few shots were heard on our left, and after an interval of a minute or so firing became general as the Blackhawk brigade attacked, the enemy's position being marked by a line of fire. We advanced as rapidly as possible, but were once discovered and met by a very heavy rifle and shell fire which cost nearly 500 yards off. Most of the shells were over our heads and unfortunately fell upon our comrades near the brigade of Guards under H. B. H. the Duke of Cornwallis, but the rifle fire hit several men and two Blackhawk Gaskins and I were shot very heavy. The Blackhawk remained where the first wounded had fallen, and entered Gaskins and one in help with the battalion as ready

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chase by the animal and the wounded were being brought in every 15 min. Those that were able to be rescued were sent down to Tanager for the daily 15 minutes on the warm water mat, soaked by the steam pressure of the flow. The birds had been opened by one man and birds were rapidly running into the canal. While here poor Louisie took Howard, R.N., was wounded in exactly the same way. I attended Major George a General Surgeon General Hospital, U.S. and Deputy S.G. Kim were at the hospital and there was plenty of everything for the wounded. I returned to camp about 5 p.m. and found the situation really in shape but it was only by shift change about a mile to the seaward.

* September 14: Large burning patches have been out all day burning dead. At noon Captain Wardell's body was carried to and buried by the soldiers.

"September 26. A dark day. "Preparations 184" in shade at 2 p.m. A fatal small earthquake from the dead on the field. News that our lines were about to be killed and wounded. Aids are organized, so the war is virtually over. All medical officers are ordered to attend to the wounded personnel who are being treated on large tents some distance off. Dr. Melton, Gilling, Ellis and I attended and saw several operations and assisted to dress some of our men. There were about 200 wounded men in treatment and only two American Surgeons.

¹⁰ September 16 The hottest day we have had since leaving, thermometer rose to 120° in shade and brown at 2 p.m. Two hundred wounded prisoners sent on by train to be treated in hospital at Xagang. Saw three dead cattle.

¹ September 17. Some hundreds of vandals went away by train. They had destroyed some statues of statues and ramp. Daring, perhaps risk along with with the clock, which is something dreadful even in the map, a smallish of night.

¹ September 18. Both H.M. & and H.M. Ltd. stated by mail for Cases at Term. I was ordered to accompany the transport which were to search the whole way. Arrived at Cases on the 18th after a pleasant march.

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The ship has been here but the preceding day very strong gale and the ship shows that she has been spent there weeks in Tang, waiting for a better breeze.

On the medical officers who took part in this expedition two medals were given. C. G. Gifford, R. M. Ellis and E. R. H. Pollard who have taken home all several special promotions to the rank of Staff Surgeon in recognition of their services in this campaign. Sir Herbert M. Ellis was Director General of the Medical Department of the Navy from 1905 to 1909. Gifford and Pollard reached the rank of Inspector General of Hospitals and Fleets (now Surgeon Rear Admiral) and were last employed in this rank in charge of the Royal Naval Hospitals in Berlin and Chertown respectively.

AN ARRIVAL UPON KILIMANJARO

By permission of the Hon. Secretary of State, C. R. WHEAT, M.P. and Sir R. S. S. S.

On May 26, 1894, H. M. S. *Albatross*, the ship in which I was serving, arrived at Tang, on the East African coast. I had visited East Africa before in 1883 and had heard many tales of this "roof of the world" Kilimanjaro—the highest peak in all Africa—which lies about 300 miles from the coast. From that time at least upon this mountain became one of my ambitions, but it was not surprising that before my return to Tang I had contrived to collect a small party to attempt the climb. The party consisted of Lieutenant Shortwell, Instructor Lieutenant Green, Mahomed W. W. W. and myself. Here is the full story of the expedition.

We left Tang on Tuesday, June 2 and travelled by train one night to Mocha the station which lies under the mighty shadow of Kilimanjaro. The station is roughly 3,000 feet above sea level. Our departure was marked by gale and a thin rain. On Tuesday, however, conditions improved and when we left the train at 7 a.m. on Wednesday, a pale sun was shining through the clouds. The mountain was not visible. It was hidden behind a bank of smoke and of white clouds.

We made our way to the Kilimanjaro Hotel in Mocha and there we secured this perhaps the most comfortable and expensive and most comfortable hotel in Mocha with its beds of white and yellow for sleeping the guest in the most comfortable and the most comfortable. The quality of the service was, of course, a permanent one. Eventually we came to a reasonable arrangement with an elderly German named Klem. He is the successful king of Kilimanjaro, and has the monopoly of all guides and porters and everything else connected with the mountain. Accordingly he can name his own price which to most visitors is considerable—no less than £10 per head. This includes food, guides, porters and all that is necessary for an attempt on the mountain. He has had a great deal of his staff, and he

managed within thirty-five to forty minutes per hour. Haggling delayed us for several hours.

At eight o'clock the Maori, on a boat provided by Koro, had food presented at Marangapua from Mrs. Koro's, along with numerous small fragments, and got going by putting the heavy canoe and gear on rafts, but in such a lame fashion and accompanied all difficulties. We went to Meneage at 1.30 and after a good dinner, we sorted out our gear and made final arrangements to commence the first stage of our climb on Thursday. Koro provided us with extra blankets and gave each of us an alpenstock. Of these we were not a little proud, but they made us feel that we had begun to be mountaineers.

I will set down our experience of the actual climb under the headings of the days on which we travelled. As I said before our time was limited, leaving the climb on Thursday. We had to be across of reaching a town at Mako on Sunday evening. That gave us only three days to reach the summit and one day to return. Energetically said it was an impossible task, and so it proved, although we made a good attempt. In fact I rather think we surprised the experts who thought it took at least five days for the climb. Let me say now that Kalamangapua has two peaks, one called Koro and the other Mawera. Koro is the higher, being 18,000 feet above sea level, Mawera is about 17,000 feet. We decided to make for Koro.

THURSDAY, JUNE 4

The climb was indeed what we began our venture, from dawn there had been a thin mistle of rain amongst the trees, and at 8 a.m., when we left Marangapua the mountain was still hidden in a mighty grey envelope, and a host of our dampness tickled our faces at our first steps upwards. The initial stage of our climb was through the forest that clothes the foot of Kalamangapua. We had been told that on our first day we might continue to reach Peter's Hut, which lies at 12,000 feet. At 7,000 feet however another hut called Ruanapuka Hut is situated, and we made this our goal first of all. This hut is just at the head of the forest region. Mrs. Peter's Hut is reserved for the use of mountain climbers. The trail through the forest was not uninteresting, although a drizzle tend to damp our enthusiasm. The path was through a dense tangle of grass and overgrown bushes, now and then a tree, fallen away, impeded our progress, or climbing plants placed in our path as we walked. Apart from ourselves, we were partly consisted of our guide, three porters, and a donkey. The porters and the donkey distributed the weight of our stores between them—no man would carry more than his share, as we were carrying three days' provisions and much heavy clothing. I walked behind the donkey and aided his progress occasionally by pushing him with the blunt end of my alpenstock.

When, after a long and wet journey we came to Ruanapuka's Hut—the time was 5 p.m.—we were glad to see and make so good a lunch as the cookhouse provided. To eat neatly reminds of brown hotel and

Following him, I found that our second apparatus had not had much success in making first impressions on the Indians. The position of the mountain, if a good place to try to reach Peters' Hut that night. We had only a vague notion of its distance from Barrow's Hut and selected three persons talked us helpfully and in English, but we had to rely on signs and gestures which were vague but not very informative. If we started for Peters' Hut that evening we were running the risk of a long wait in the dark and the cold. Wilkeson and I were all for going on so long as we could, eventually our mounts provided and we started to move upwards again to about 4800. But a truly dreadful journey was ahead of us. The run became steeper still, when we started from the lower and higher fell with our destination a long way off. The disadvantage of our total ignorance of the British tongue forced itself on us, as did the equal ignorance of English amongst the natives. They could never give us the faintest idea how far ahead Peters' Hut was, nor the compass was made more waste by the fact that no night here to spend the night on the mountain side. The climbing itself was not without the usual was gradual, yet our lungs was becoming more apparent every moment. Barwell and Evans fell several times. The day was overcast—a wonderful sunset—the packed the way amongst the boulders of the path with the darkness of a foreigner lady during the sunset. About 8 p.m. the weather conditions improved. The run ceased, the wind dropped, and the mountainside ahead stood more clearly against a blue black sky speckled with stars. At 11 o'clock I suggested that all hands should have a lot of brandy, then we ate and a few interesting to see the change the spots made in the bearing of the natives. They drew their blankets more closely about them, and stopped on with a happier step. At last, after we had moved several times, dark, depressing waterfalls fringed by ice we sighted Peters' Hut and drove our weary legs forward. To think! we were tired. The descent over the last was not and a few could not be persuaded to leave. We had a cold and rather uninteresting supper then throwing us all the clothes we could muster we started into the huts that the little had heated. Looking back on the efforts of the day we felt we had done well. We had reached Peters' Hut at 12.30 p.m. To begin at 9 a.m. and walk uphill until 11.30 p.m. in conditions that got gradually more and more like winter was a hard experience. Barwell was greatly exhausted at the end, and Evans was not in good condition either. Wilkeson and I were fairly fresh, although we realized that our five day had been a great strain upon our stores of energy.

After resting in that night we suffered our first experience of altitude sickness. This took the form of slight headache and a strange mental confusion which meant a sense of extravagant, sloped ideas to flow through our minds. These symptoms served to keep sleep at bay for many hours.

[illegible]

ward the temptation. Having come so far we felt we must go for the summit.

SEPTEMBER. JUNE 6.

If we were to reach the summit of Kibo it was possible we should meet the final ascent at about 8 a.m., when the sun was at their zenith. We arranged that Willmetts and I should carry on, and that Owen should stay in the cave and return later in the morning to Peter's Hut with the porters and the donkey. The guide, of course, was to come with us. So two rather weary figures crept from the blankets at 5 o'clock. After trying in vain our shivering bodies with a tireless coat of frost and moisture, induced by tea and brandy, we made a start. At the mouth of the cave several candles were hanging. We passed under them out into a morning on which a moon was throwing a ghastly light, and began to climb towards the snow line. The ascent was now very difficult. We had to clamber over slippery rocks and catch a broken leg or a spanned ankle if we should either backwards or make a false step. Our progress was slow, and the desperately weary business of breathing almost made us wish our lungs would stop working. A supply of oxygen would have been an absolutely boon. When we had risen about 1000 feet we came to the snow-belt at the equator! To me it at our first gave us the substantiation of one of our ambitions at my rate. We reached the patches of white and found them hard and frozen slabs to us. Progress continued to be dreadfully hard, the excitement of the previous day cancelled by lack of sleep, was beginning to tell. Willmetts was in better condition than I. To tell the truth I was moving so slowly that I asked about in the time we had both of us could not reach the summit. Between each step I found it necessary here to rest for about two minutes. So very reluctantly I decided to give up and let Willmetts go on with the guide. I dragged from my pocket an E.M. 5. Recharge my oil-lamp, which we had brought with us as a token to place on the summit, and gave it to Willmetts with my blessing and good hopes, exhorting him to go on until he was forced to stop. The dawn was beginning to make the sky pink when I said good bye to our last survivor, and I watched him climbing thirty upwards while I sat getting the breath back to my body.

I was not, however I had to give up, but I reflected that, at my rate I had reached the snow line and had gone as high broken by fatigue. I missed a long time before I began my journey back to the cave. The sun had risen and made my descent steep. Yet now, although I did not realize it, was beginning the most distressing part of my Kilimanjaro adventure. I had achieved on looking my way back to the cave easily, but to push out a score miles, hundreds of stones, and crests on the rocks was a task that for a time baffled me. The sun was high in the heavens when I finally managed to negotiate the cave, and a new discomfort was boring itself on me—thirst. Probably I suppose, I had not filled my water bottle, thinking that water would not be difficult to get on the climb through snow.

Now that I was at the level of the desert and the much-needed water-hole, I was assailed by a fearful dryness of the mouth that the discomfort was no every moment on the way mounted. I was determined to find out if there had left the eyes and food or water was not to be had. This was to be done. Obviously, I must go in search of water. From the cave I looked down the long, steady slopes of the saddle between Lake and Mountain. Far off I could see the glaces of water. I set off for this without delay. Before long I was almost crazy with thirst. I remembered tales of travellers walking the desert with swollen lips and blebbed tongues. In my mind I saw all sorts of images of such drinks I had had and enjoyed. I could not have believed it possible for anyone to get into such a condition following just a few hours without water. My mouth was dry, my tongue sore, and my lips were coated with a heavily brown mass. As I walked, the water I was seeking for seemed to be getting no nearer. I was desperate enough to maintain my lips with some sandy stuff that lay on the plain as spare protection. I must have looked a pretty sight indeed, staggering along with two days' beard on my chin and my body craving for water. Once I thought I had reached a tiny pool and appeared, but to my chagrin I found that the wholeness I had imagined to be the glaces of water was merely some blebbed mountain peak. And so I had to go. At long last, very tired, I reached the lower of my dreams—a tiny lake near the base of Mountain—probably just an accumulation of melted snow and rain. I cut off my pants with my knife and literally threw myself face downwards into the shallows of the lake. I lay and sucked on the icy water in great gulps. Never before had water tasted so delicious. Finally, I drank so much that I was assailed by giddiness and also had some abdominal pain. Then I lay by the side of the water and rested. Presently I fell asleep. When I awoke, I judged the time to be about 4 p.m. I had been walking the saddle for over three hours in my quest for water. I made up my mind that I would stop where I was and wait for the return of Williams and the guide, whom I was certain to see when they came down from Lake to the saddle. So I continued to lie at my ease, feeling better and better, although I was getting hungry. About a clock Williams and the guide appeared—walking, possibly, separately the water, who had got fresh fish on his line. Williams was very depressed because he had not managed to reach the top of Lake. He had only just before he had got to within 800 feet of the coveted height, and had then been confronted by a porcupine, which in his confusion of extreme exhaustion, he did not think safe to approach. His mouth was so cracked and painful to move, although from a different cause, the cold of the cave region, instead of lack of water. It was getting to them he had been so near the top with the top ribbon and had to come down without picking that moment of the day.

There is little more to tell. Williams and the guide and I trudged down slowly to Peter's Bay and found Bruce and Barrett waiting us with a hot supper and a good fire.

negative negative results may be misleading. And because of sensory-motor changes, the information-matrix method gives a high percentage of false-positives, but because the percentage may have left the information-matrix and possibly the information, if I accept the thesis to enter every part of the body. In other words, the data is a false-positive of the whole. If a subject were found to be, simply aware, that the subject was aware of a process, there would be no more to be said. It is conceivable that there were also related to the subject, with the rest of the world.

It will have to wait until the Council's representatives for the meeting at national parliaments, information that, for me, remains as another very often cited very negative example. For those reasons, I think it desirable that also before publicly should be given: It shows again, which has the proved positive is that those representatives may not become to be changed at an higher of public mouth.

The case I have described was not due to the T antigen but to the J antigen, and the chemotherapy, surgery and pathology is much the same. This case is of particular interest because it was proved by operation and, I believe, only the third reported in the

[illegible]

² While sitting in the very front line amongst the others were a sudden cry as if all lunged into the flag in space. All the members of the body were in motion with the arms and legs vibrating, and waving the flag. The vice-captain and the group had to hold open with a gag. This all lasted for sometime and after the space was over, he appeared to be pushed and had a tendency to kick out an uncomprehending and odd stare.

Thus they be taken as a good description of an ordinary apology; by and by will be made that there were no great suggestions of any technical considerations such as would be demanded by a professional match.

The second specimen had a very narrow margin, as this affects the leaf margin, for it happened that they lived on a *Juniper* in *Asplenium* and this margin was nearly twice as big as the "margin." The parent was then very narrow in the same proportion of margin to the *Asplenium*. The mother suggested that another specimen should be sought and I was only too pleased to agree, and on January 17—only five days after the specimen was brought in—I had the pleasure of meeting Dr. H. A. Hodge (Franklin, who was down in the boat for his *Asplenium*

[illegible]

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may a depth of 10 mm. on the side men and the right side of the cornea a few, smaller than those on the left. Movement in all the eyes 100-150/60, superior, preponderant. At 10 mm. depth on the cornea no movement in all eyes. The visual fields were a little narrowed on the right in a paracentral manner, the inferior temporal quadrant on the right side. The vision was 7 right and 6 left but with some uncertainty. The tongue The left arm did not light up, and although there was no atrophy on the left a few small paracentral areas, it is present.

The only thing was other than the, viz. of which the patient complained was of some itching on the left side of the skull over the parietal bone but it was not in any way more or less than the same tender pressure. In the light of subsequent events, this slight symptom was of much greater significance than might have been thought.

Dr. Halsey, from head was of the opinion that a cerebral tumour was present and that it was probably situated and in the left temporal region. There was nothing to suggest an abscess and it was present as far as a glioma. In view of the diagnosis it was decided to carry out and did the office forehead in skin but could go into a nursing home at London under Dr. Halsey's treatment, as when I was present satisfied by giving up the subsequent history of the case.

The patient was admitted on January 15 and admitted to the London Clinic on the same day. On the day a further operation was done. The speech first was under slight pressure and given reading of 100 mm. of fluid. It was superior to the Wassermann reaction. On the following day Dr. John Taylor replaced the skull in both temporal regions and opened up into the brain. The resulting meningitis was cleared that the brain was displaced as a whole towards the right side of the skull. Some fine meningitis occurred the site of the incision it helped slightly it was decided to operate and on January 22 Dr. John Taylor made a third deep flap on the left temporal parietal region. The palpation on men of abnormal firmness was felt and a yellowish tumour, deeply traversed, from the surrounding tissue, was removed and the skull closed.

Following the operation there was a slight right homoptopia the eye being most severely affected, and there was considerable increase in the pre-existing disturbance of speech. At the time of writing—two weeks after the operation—all signs of the homoptopia had completely disappeared and the speech defect resulted only in a very occasional slip for the repeated word.

The tumour corresponded to size, with a sphere of about 100 mm. in diameter and a brain section of it was pronounced by Dr. J. G. Greenfield to consist of the core of the *S. japonicum*. Dr. D. J. B. Greenfield was following the treatment of this infection and it is hoped that no good recovery will follow this as has followed the operation.

A blood count made one week after the operation by Dr. E. Goodhouse (Oxford) shows that most of the pathology is further proved by the Greenfield's in agreement with his other work—showed a high rate, *leucopenia* count.

Remarks.—The last that was a curious disease in epilepsy was due to paraneuritis but no important lesson to give in the very white, but personal notes so much altered. It is questionable whether epilepsy occurring for the first time in a full life and progressing on a ground of serious illness, should not be given all possible benefit of the doubt when assuming *meningitis*. The prognosis of paraneuritis and thymic infection is very good and the possibility of paraneuritis is usually in very good. In epilepsy I have described the condition under the which the patient was probably not really considered, not characteristic, but it is likely that this disease will be reconsidered in the light of what has been found.

Infection by *T. schenki* by an insect bite of human *meningitis* has been, and always that epilepsy is clearly a disease of childhood may be that they have a work less a broader meaning than one of that thought. May there not be a connection in many cases between these two kinds?

Because it is possible to transmit a fatal toxic patient's illness, there is a ring around, which may have very serious consequences, and it is a thing of which we on the hygiene station, unless you suggest with all possible carelessness the desirability of instituting periodic tests of the blood and urine on all persons coming on these parts of the world where infectious diseases are likely to be acquired. These tests are simple and can be done on a test. It is feeling the pulse, a high temperature in the blood, or of one or the other might also have side effects in an infection long taken it would also say, he could not make it to be tested before days and months have been in error. It is not making this suggestion for a number of one case only, for I reported two others in a letter to this Journal (April 1934).

Only two others who had never actually started but had not been off on their lungs since. This was completely of symptoms suggestive of early carcinoma of the lung and but for the laboratory tests I ordered I would have been known that it appeared was the case. In the other case the symptoms of nervous pain in the hypochondria, and indigestion suggested the diagnosis of gastric ulcer, but I fear that a course of "Bismarck" dose and treatment would never have cured the polyphasic nature which the illness was following.

It is thought that the possible tests I have suggested would be so extensive they might be carried out in a number of countries where these various parts of the world. But now the danger has well established, one would like to think that means to avoid them will be thought well worth while by medical officers in the various cases.

A CASE OF VENTRICULAR FLUTTER TREATED BY DIGITALIS

By HENRY C. LAWRENCE, F. R. S. (LOND.), F. R. C. P. (LOND.)

and

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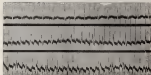
The following case may be of some interest as it shows the change from auricular flutter to auricular fibrillation on treatment, from digoxin treatment, and the establishment of normal cardiac rhythm after the drug had been stopped on the onset of hypothyroidism. It was impossible to determine how long the condition of auricular flutter has been present before the patient was admitted, but as far as could be ascertained it was not more than fourteen days and probably less.

The patient was an able seaman, about 47. He was admitted to R. N. Hospital, Harlow, on December 12, 1933, complaining of a rough and irregular pulse, which had occurred a fortnight previously and had gradually become more severe. The pulse a history of having a rather irregular pulse a year before when he was in a small hospital on London as a result of injuries sustained in a motor cycle accident. The pulse on this occasion passed off without treatment and no record of the condition could be obtained. From that time he had been probably neglected the rest of his present illness.

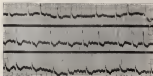
While staying in R. N. Hospital at Harlow on the day before admission, the patient had suffered from a rubbing pain in his chest and had felt very cold. The rubbing pain passed off shortly after he came out of the water but the chest discomfort persisted. The patient also stated that he had been sleeping very badly since his illness had commenced. He felt very restless at night and was on occasions as if he was afraid to lose control of himself. He had no history of rheumatism or of any other disease likely to affect his heart. The consumption of alcohol and tobacco was moderate.

The patient was a tall man of very powerful build. He was rather an

muscle rigidity, and a few days later attacks of vomiting, which began tomorrow. The temperature rose to 101°F . by the fifth afternoon, together with bradycardia, 60-70 beats to the minute, and rigidity of the respiratory muscles. The tongue was clean, taste no good, no thirst. Vomiting slightly repeated on 8, stools normal. Examination



of his chest, revealed no abnormality and no gross pulmonary congestion, good and equal. The pulmonary valve was impounded and well beyond the site of the lesion was closed. His apex beat was in the fifth intercostal space, in the mid-clavicular line. No third or fourth sounds. The apical rate was 100 per minute, the heart sounds were



normal and a few extra systoles were present at irregular intervals. All other systems were normal. The pulse rate at 10 p.m. was 130 to 140. If any symptoms were observed so abnormal as the cardiac failure. The case was previously diagnosed as neuritic fever and the following day after examination was completed on December 10. The only clinical observation was. A case of neuritic

Reiter took a 2 to 4 liter fluid intake, the urine testing at 300 and the creatinine at about 150. (Slight left axis deviation is present.)

This diagnosis of muscular Reiter being established, it was decided to attempt the cure by muscular stimulation by treatment with diphenyl sulf. by stopping the

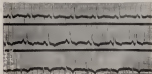


FIG. 1

diphenyl sulf. stimulation had been established and when a shift in one of the leads would indicate an abnormality (Fig. 1). This is a shift in the position along 30 per cent of axis. If the heart did not receive normal rhythm and stimulation persisted it was then proposed to attempt to correct some of the lead by treatment.

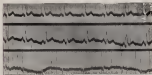


FIG. 2

with quinine. The patient was given 30 cc. of solution of diphenyl sulf. This was continued for ten days, by which time stimulation was well established 300 cc. of the drug having been given. A further electrocardiogram examination was now carried out (December 28) and the following report was made: "No muscular stimulation is present, the creatinine rate being

80-100, greatly irregular in time, the rate of the beats varying also. *Flutterings* were not infrequently heard, *A* rate about 100 per minute. *A* tachycardia to left was deviated to right present. *T* is slightly inverted, *T*₂ and *T*₃ markedly so.

Digoxin was now stopped and the pulse slowly became more regular, but evidently to a considerable degree perturbed until December 26. On that date the pulse was perfectly regular with a rate of 64.

On December 26 a further electrocardiographic examination was done, the report on which was as follows: "Normal rhythm present. Pulse rate 70. Right left axis deviation present. *T*₁ flattened *T*₂ and *T*₃ inverted."

I had conversation with the electrocardiography unit and learned further history *T*₂, *T*₃ etc. as it was thought that the recovery of the *T* waves up lead I, II, *T*₂ was probably due to the action of digoxin. The report was as follows: "A normal electrocardiogram. The pulse rate is 70 and regular. *T*₁ and *T*₂ are upright and well formed, *T*₃ slightly inverted, and minor left axis deviation is present."

During the first week of the postoperative stay in hospital he suffered from an acute bronchitis which caused him some discomfort and probably associated it some extent for his return to normal gain. With the onset of bronchitis he felt much more comfortable and his general condition improved considerably and when normal rhythm was reestablished all his symptoms seemed to disappear. He was discharged to duty on January 22. Orders were issued that he was not to be employed in a farm, and he was instructed to report for further examination in three months time.

SOME UNCOMMON SUBCUTANEOUS CARCINOMAS

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DETROIT

Case 1.—*Laryngeal Swell.* J. E. W., aged 31. Was admitted to hospital complaining of a swelling swelling on the right side of the neck first noticed three years previously. It had gradually increased in size, but had caused no symptoms.

On examination there was a round fluctuating swelling, with a well defined edge, on relation to the anterior border of the sternocleidomastoid on the level of the larynx. It was easily mobile and measured 14 by 14 in. The overlying skin was movable over the swelling and of normal appearance.

There were no enlarged glands.

Examination of the throat was negative. The larynx was not examined. There were no laryngeal symptoms.

A diagnosis of branched cyst was made.

Operation.—The cyst was exposed by an oblique incision, and on opening the deep cervical fascia it was seen protruding from under the anterior border of the sternocleidomastoid. The cyst was incised in order to get a better grip of the wall. It was found to contain air only. As the dissection proceeded the tumor was more clearly defined. The lateral border was just overlapped by the sternocleidomastoid. Finally and suddenly it was covered by the anterior belly of the omohyoid and thyrohyoid branches, and apparently it extended deeply beneath the posterior belly of the digastric. It was then seen that the cyst emerged by a narrow stalk, through the thyrohyoid glandular it was not away from the membrane. The neck to the thyrohyoid from the hyoid gland was divided in the wall of the cyst and was cauterized. The original laryngeal mass was closely related to the posterior capsule and the hyoglossus in the upper border of the cyst, but these were carefully separated.

The wound was closed without drainage, the party that was left being obliterated by desiccation.

After the operation there was some hemorrhage which lasted for about three days. This may have been due to the intraabdominal spill through which the gonadotropin was given, for nothing unusual was seen in the blood.

The result of the operation was obtained unexpectantly and was found to extend of greater benefit than by previous operations.

Development of the corpus luteum. Leroy (1) was probably the first to give an accurate description of the condition. In 1929 he found examples of these structures in some of the patients who had started the treatment of the ovaries from the Menopausal Association.

Development of large-sized corpora lutea have been given by other writers that have Meyer (2) is quoted by Shambaugh and Larrow (3) as follows:—

"In this specimen the appendix of a moderate-sized ovary appears as a yellowish body between the appendix and the outer surface of the broad mesosalpinx. The appendix was attached directly beneath the ovarian mesosala, at the lateral end and the very large appendices. It measured 2.5 cm. in length and 1.5 cm. in width. It appeared to be attached by a short pedicle was, a mass which, after placing the abdominal incision, passed into the body beyond the ovarian mesosala, where it formed a large, white, large-sized pouch 3.5 cm. x 1.5 cm. and 1 cm. in depth. Nothing otherwise abnormal was found in the ovary."

The appendix of the ovaries is a structure in which is placed between the mesosalpinx and the broad mesosala. It is usually attached higher than the broad mesosala. This was observed in a specimen, which was found to have an ovarian mesosala which contained masses containing glands which function as to increase the blood supply.

Shambaugh and Larrow (3) divide large-sized corpora lutea into three types:—the large-sized, the large-sized, and the small-sized type. They consider them to be associated and that they are analogous to the case found in the ovary. Huber (4) stated that occasionally more of growth and development of the ovaries are not made and that they may even produce the large-sized corpora lutea.

The histological appearance of these ovaries are similar to the normal form of the ovary.

Up to 1933 Shambaugh and Larrow (3) stated that only fourteen cases of large-sized corpora lutea had been described, and of these only six were large-sized corpora lutea occurring in men and two in women.

Clouston described two cases found post-mortem, both of which showed the large-sized corpora lutea and part of the large-sized corpora lutea.

Van der Wijk (5) described a normal type. In this case there was an extensive degree of hyperplasia and dysplasia. He also described a large-sized corpora lutea in the region of the large-sized corpora lutea and also a normal type of the large-sized corpora lutea. The normal condition could be reduced to normal, and it did not appear to be abnormal.

Neither of these points is as noted in the case reported above.

This case demands also the importance of reporting all large-sized corpora lutea in the case for confirmation of the diagnosis.

REFERENCES

- (1) Leroy, R. J. *J. Clin. Endocrinol.* 1929, 1, 1.
- (2) Meyer, P. *Int. J. Gynecol. Obst.* 1929, 1, 1.
- (3) Shambaugh, G. F., and Larrow, J. *Large-sized Corpora lutea*. *Obst. Gynec.* 1933, 1, 1.
- (4) Huber, C. *J. Clin. Endocrinol.* 1933, 1, 1.
- (5) Van der Wijk, J. *J. Clin. Endocrinol.* 1933, 1, 1.
- (6) Clouston, G. *J. Clin. Endocrinol.* 1933, 1, 1.
- (7) Van der Wijk, J. *J. Clin. Endocrinol.* 1933, 1, 1.

Case 1.—*Course of the splenic pain.* D. U. aged 35, admitted to hospital complaining of steady pain of two days' duration in the left hypochondriac region, caused by the left renal area. The pain had no relation to food. There was no nausea, but he vomited once without relief shortly after the pain commenced. He stated that he had had similar attacks, the first one in 1903, say they were rather more severe for him to "growl." He lost weight and at intervals had a good appetite. There was no history of cancer.

On examination the temperature and pulse were normal. He was a well-covered, healthy looking man. Abdomen was quite soft and not distended. It was noticed that there was no change in the normal splenic dullness, and the organ itself could be distinctly felt. The anterior border being about 1½ inches below costal margin. It was fairly movable and could be pushed up under the ribs. The liver was palpated 1 in. below the costal margin.

A diagnosis of "wandering spleen" and possible tumor of its pedicle was made. The patient was put to bed, the temperature was of course taken, and on the end of the third day the spleen could not be palpated and the liver dulness was normal. Four days after admission operation was performed, and a slightly enlarged spleen with a long pedicle, was easily delivered into the wound and removed. Lowdowns was successful, and when some six months later patient was quite well and free from pain.

According to Thomson and Miles, wandering spleen is "almost invariably met with in obese women, who have large children."

The spleen is shown completely surrounded by peritoneum which is reflected on to the greater curvature of the stomach as the greater omentum ligament, and as to the anterior surface of the left kidney as the lesser omentum ligament. The lower border of the spleen being supported by the phrenicocolic ligament. These ligaments are capable of considerable stretching and when this occurs the organ may be fixed to any part of the abdominal cavity, and by dragging or pushing an adjacent tissue may give rise to symptoms referable to them.

Wandering spleen is often a part of a general process of the abdominal viscera. Numerous operations for fixing the spleen have been performed, but they are not very satisfactory and unnecessary, in nearly all cases.

The spleen's function of destruction of red blood cells, of increasing their supply, and the destruction of blood plasma was well illustrated in this case. The blood plasma rose from 555.000 per c. mm. immediately after the operation to 695,000 per c. mm. a short time.

Hæmoglobin of the red blood corpuscles amounted to 5.34 per cent., and settled at 0.50 per cent. NaCl, whilst a week later it amounted to 5.0 per cent. and settled at 0.28 per cent.

This case supports the view of vonthalschup regarding the vermillion in le leucæ in that a few days before operating to that there is less corpuscles and therefore the content of the spleen is considerably diminished.

Case 2.—*Renal disease.* H. T. aged 34, was admitted to hospital on August 11, 1903, for left hæmaturia.

His history was as follows: "During the last year or so and off for three years. He was first seen on April 29, 1903.

He then had a small pain posteriorly and a little hot smelly discharge. Head aching. Bowing slightly increased. He began to lose or think Wassermann reaction negative.

He was treated as an art patient externally for three months. As there was no improvement in the local condition, and as the patient was suffering from persistent severe frontal headache and on drug showed a completely negative reaction, it was explained to the patient that there was a danger of permanent complications and intraspinal therapy was advised.

The operation was performed on August 15, 1903. The focus of the rounded process was at the middle of the 7th. As a specially placed lateral incision was exposed

and appeared normal. A very deeply seated incision was made after a prolonged search, during which the rest of the nasal cavity was accidentally opened but no nerve exposed damaged. The great wall of the incision was protected and all damaged sinuses in incision closed snugly. The posterior bony wall of the external auditory canal was removed, but the "bridge" was left. The incision was treated with "Vapo" and the wound packed with gauze moistened in penicillin.

Five days after the operation he complained of frontal headache similar to that from which he had been suffering before the operation. On August 26 he was much worse, and patient became very drowsy and lay motionless for two nights only. He remained sane. This was followed by nausea and continued fever.

Temperature, 101° F. Pulse, 64.

Examination of his central nervous system revealed nothing abnormal. On testing for the presence of word aphasia he was shown continuously a spoon, a key, and a watch and he called each of them a "nose level" but he knew their uses. He recognized a pen and ball a cigar.

Leukocyte pointure was performed and 15,000 of these indicated that even with drainage under increased pressure. Pressure on the pupils is increased on the side of left.

Laboratory report. Cells 428 per c. mm., globulins in excess, sugar, 62 mgm. per 100 c. c., albumin 720 mgm. per 100 c. c. Cerebrospinal fluid. From the incision area. Total Protein 28.7 c. mm. Lactic acid Polysaccharide 56 per cent. Temperature 55 per cent.

Examination of blood. WBC 14,000 per c. mm., polysaccharide 54.5 per cent., lymphocytes, 11.5 per cent., mononuclears, 4.0 per cent.

Patient was given an course of very slight and put on a soft bland, pale diet.

On the following day—four or ten days after the mastoidectomy—the patient was more drowsy and difficult to arouse. His skull x-ray revealed a p. p. The right side. Temperature, 100° F. Pulse 64, but dropped to 48 for a short period during the morning. Delirium with aphasia was present.

We called a watch something unobtainable but said that it was his "telling" time. When there was a question he would say "nose" to, but in one it was his "telling" time. Right eye and treated by light. Right divergent against left eye. No nasal perforation. Tongue and palate mucous membrane normal.

Acute. No gastric tenderness. Tenderness present but more marked on right side. Abdominal reflexes present.

Legs. No pain. Reflexes normal. Rearing a test negative. Neck stiff but no pain on flexion.

Ophthalmology report. "Blind normal. No signs of any increased intracranial pressure."

Second leukocyte pointure. None of these indicated that with them. Laboratory report. Cells, 476 per c. mm., polysaccharide, 56 per cent., lymphocytes 15 per cent., mononuclears, 3 per cent., globulins in excess. Globulins, 720 mgm. per 100 c. c.

A diagnosis of left temporal epidural abscess was made, and it was decided to explore the brain. Patient's condition very rapidly deteriorated, and by the time he was brought to the theatre he was unconscious and movement of arms and legs.

Operation.—An epidural abscess was necessary caused by a small amount of ether when the rest of the middle ear was being treated. The abscess (which was in spread and extended by a central incision into the upper. Using a J. incision, a flap of bone was removed about 1 c. above the posterior end of the incision and above the middle. Bone was then drilled away all around the opening but chiefly in a downward direction. The rest of the middle ear and external were quickly removed. The dura slipped into the wound. There was no pulsation. The bone and dura were carefully examined for a possible point

of infection, but none was seen. The middle ear was then shut off from the drum by packing the Eustachian orifice with hydrogen peroxide and cotton, and three months lay about five over the patient. The opening was filled with heavy gauze. A pair of Eustachian tubes and the eardrum having been secured in a horizontal position for about 1 cm., and on opening the Eustachian tube half an ounce of pus was evacuated. The deepest cavity was well defined with a fairly thick wall. A drainage tube was inserted and passed in the drum by ear sticks. It was supported by gauze and the middle ear widely open. At the end of the operation patient's condition was much improved, and the pulse rate was 100.

Progress.—The following day patient was less drowsy and quite responsive. The temperature remained around normal, varying only to the extent of about 1°, but the pulse rate dropped back to 90. A further 50 cc. of cerebrospinal fluid was withdrawn. The left chest had also dropped to 50 per cent. Discharge was 120 cc. per 24 hr. He was returned to bed and the drainage cavity gently irrigated. There was definite painless pulsation of the surrounding bone.

Discharge.—The effusion was green from a week from the drainage cavity. This was probably a contamination.

General condition.—The patient was kept up on the fourth day after the operation. The pressure had then returned to 700 mm. but the left chest had dropped to 50 per cent.

On the fifth day the patient's condition had considerably deteriorated. The pressure of cerebrospinal fluid had risen to 500 mm. and the left chest had fallen to 10 per cent. Culture started. Both ears were almost void of any pus, and it was noted that the tube was no longer pulsating and the discharge had ceased. It was decided that the drainage was inefficient and it was decided to replace the tube again. The pulse rate was 90.

Pain could not be traced and nothing was very definite.

Operation.—September 2. 50 cc. of 50 per cent. solution of sodium was given intravenously. A very small amount of study was necessary. The patient seemed not again improved. The opening in the drum was enlarged and at the same time was exposed by some troublesome hemorrhage from a branch of the posterior division of the middle meningeal artery. The original drainage cavity was found full of blood clot and what appeared to be decomposed brain matter. There was a large pocket posteriorly communicating with the wide cavity. The whole drainage cavity was thoroughly cleaned out and gently irrigated with saline. It was about the size of a duck's egg. A drain having been placed the operation was rapidly concluded as the patient's condition appeared desperate. On his return to the ward his temperature normal. Arterial response combined with the administration of CO₂ and oxygen, and a substitution of injection of strychnine, turned them to unconscious again.

For half an hour temperature was only maintained by supporting them artificially and maintaining the CO₂ and oxygen. Eventually breathing resumed without artificial aid. Pulse remained between 90 and 95 and was of good volume.

The following day improvement was marked. Temperature 98.4° F. pulse 90 to 95. Taking nourishment well and answering questions quite rationally.

On September 5, the pressure of the cerebrospinal fluid was down to 145 mm. There was no effusion in the fluid but the drainage ceased. Drainage was low and the underlying bone was pulsating normally. Local condition was improved in another three days. The pressure remained around 120 mm.

By September 14, the drainage cavity was almost obliterated by the expanding bone. Discharge nevertheless continued. Up November 11, the condition was better, but some discharge persisted from the middle ear as cerebrospinal pressure remained high. About four to five other ear further delay of the intervention but on January 20, 1926, he was discharged in debt, the ear being

quite dry. Bleeding was rapid to the unresuscitated area at 12-15. He was quite normal in all respects.

The histology pictures of this case are largely pale, to the very slightest staining, he reacted.

Remarks.—When the supposed epinephrine solution present when the operation of myocardiotomy was performed.¹ The present history, of headache and the return of the shock state suggests this possibility. On the other hand it is to be noted that the initial pulse was very robust, and there was more than the usual increase in shortening the heart. *Malapropos* quoted by Gellé (1) has shown that single exposure of postoperative preparation, 10% was followed by supraventricular fibrillation in the heart (normal) of a dog, but if the dog's heart was exposed ten days previously the operation was followed by no fibrillation. There must have been considerable damage during the myocardiotomy, and this fibrillation may have resulted from this. It is of important point which should be borne in mind when operating upon this type of animal.

Should the minute amount have been exposed during the myocardiotomy, too to include the possibility of a shock state? According to Gellé (2) there are three possible pathways for solution to pass through the heart in the form (1) by direct entrance through hole of myocardium of heart; (2) to the blood which is injected or removed; (3) by pericardial cavity.

In the first instance the loss of electrolyte may be through a compensated or a restricted gap or hole, usually a pathological gap resulting from the return of myocardium. He believes that a partial entry of solution as in the latter in this case, and if not fatal it is because the tissue is myocardial. He found a point of entry in 50 per cent of operations made and of 10 operations was well there was a definite myocardial point of entry in 18.4. 90 per cent and from this point a track led to the shock in the heart. On the other hand Lushington (3) states that a myocardial gap is present in only 4 per cent of cases. One would not expect to see a track from infection by blood stream, and a factor by pericardial cavity applies chiefly to the pericardium and heart. Therefore, in this case, as well as the history quoted above and, apart from the headache, the absence of any physical signs suggesting an intracranial lesion I do not think it would have been possible to have exposed the middle cerebral lesion and possibly open up a pathway of solution. Actually in this case up track would have been seen.

I am unable to explain the shock state at the myocardial level. It is very dry to myocardiotomy one would expect to find some red blood cells in the fluid but there were none.

The percentage of white cells in this case was very high and suggested either an acute dried shock or a very important brain shock. For H. H. Lushington (1) states that the cell count depends upon the area of involvement of the myocardium and the thickness of the electrode. I suppose a tested shock may be present or absent may well change.

The electrical nature of the myocardial fluid is important as regards any, even if it also depends upon the extent of myocardial involvement. Gellé (2) and Gellé (3) (4), who investigated the electrical nature, state that in every case in which it had to be kept per 100 c.c. of myocardial fluid the pressure was 100.

The lowest recorded in this case was 500 mm. on the day following the first operation on the animal.

Attention focuses the importance of placing all cases of myocardial heart shock on a full hourly pulse chart. He has shown that there are occasional periods (subnormal) and being only one hour or two, when the pulse rate drops out of all proportion to the temperature. He considers that the head pressure is not due to increased pressure of the myocardial fluid. Lord has shown that compression of the papillary area in the neck will myocardial causes of pressure in the myocardial fluid without altering the pressure. Some other factor

besides the assumed pressure must be present, and Adkinson believes that it is due to some absorption. In the case quoted above the subcutis dropped in 48, for a short period only, the morning of the first operation.

Excision of the skin in these cases is full of words dangerous when the student does it more when observations precede but it can be a useful supplementary sign. It was present in this case just before the second operation on the elbow.

The diagnosis of this case was made and particularly easy by the very delicate wood splints. It is the only sign which is entirely characteristic of a temporal lobe lesion, and is usually considered to be synchronous with a lesion of the temporal lobe on the left side of the patient (right hand) and on the right if the patient is left handed. Fetter (16) has reported a case of epilepsy as the result of a right temporal abscess in a right handed patient.

The choice of any patient can be explained by the reported character of the abscess.

REFERENCES

- (1) Olson W. and McKim, J. *Spines of Medicine* 1901 p. 100
- (2) Gussakov, S. *Medicine* *Review of the Cases* 1904 p. 10
- (3) Karamanov, M. P. *English Dictionary* 1904
- (4) Gussakov, S. *Medicine* *Review of the Cases* 1904 p. 10
- (5) Gussakov, S. and Gussakov, S. *Review of the Cases* 1904
- (6) Fetter, J. H. *Journal of Neurology and Psychiatry* 1904 p. 10

A CASE OF DISLOCATION OF THE ACROMIO-CLAVICULAR JOINT

By BRUCE C. CHAMBERLAIN, M. D., CLINICAL PROFESSOR

Dislocation of the acromio-clavicular joint being of somewhat uncommon occurrence the following notes on a case which came under observation by H. M. F. Chamberlain may be of interest.

A. B. reported above 1730 on December 2, complaining of pain over the right shoulder and inability to use the right arm on the ground of a blow sustained while playing football football. He had been charged by another player who had struck him suddenly with considerable force over the upper part of the arm and shoulder. He did not fall, and though in pain continued playing as the game was almost over.

When asked to the right lay on his right on the ship, about as soon after the accident, he was unable to use the arm, the movement which sustained most pain being very difficult to raise the arm upwards in an extended position, or to bring it forward across the chest. Pain was referred to the acromion and there was tenderness with slight swelling over the acromion. There was swelling over the acromio-clavicular joint and there appeared to be marked movement of the outer extremity of the clavicle.

The following morning the shoulder was exposed on board H. M. F. and the findings indicated that there was no wound or separation between the outer end of the clavicle and the acromion (Fig. 1). In, however, over a vertical line of the joint between the ends of the bones was seen as a short row, to be easily seen, depending on the angle from which the photograph is taken, a cleavage was seen which seemed to be the joint, and as a result of this it was concluded that there was "more or less" of the acromio-clavicular joint, due to a partial upward fracture. There was no evidence of any fracture of the bone of the shoulder.

Treatment. At first the shoulder was treated gently backwards and kept in position by bandaging in a similar manner to that used for the treatment of a



240 2—*Trigonostemon* *Trigonostemon*



241 1—*Trigonostemon* *Trigonostemon*

position of the shoulder. This method, however, did not give satisfaction, and after a few days it was decided that one of the shoulder bands with straps, as shown in the photograph (fig. 1). The displacement was reduced and then a cast was made, moulded over the shoulder, the outer end of the straps was fastened to the cast, and the cast, straps, etc., to fixate the elbow. The forearm was fixed in a cast and maintained in place by a bandage around around the lower part of the elbow with a strap to support the arm. The arrangement was comfortable, efficient and was found to be quite effective in keeping the bone in good position.

Progress.—The shoulder was not disturbed through even by re-straping, owing to the pressure from the bandages becoming relaxed, and December 10.

On removal of the strapping on that date, although the arm was already extended still from above there was no longer any pain, and the motor activity of the shoulder was good, free. There was slight swelling still, owing to the repeated disturbance just to facilitate joint movement on the right side then. The left arm there was no tenderness or pressure over it.

With the help of coverage cast of the arm was returned, and by December 22 the patient was able to raise the arm level with the shoulder, extended, without any pain, and backward as well. Forward movements were equally satisfactory.

By January 7 he was able to use the arm quite freely, and was considered by us ready to leave. He was, however, advised not to take part in any games for a period of three months.

For the photograph illustrating the method of applying the strapping I am indebted to Lieutenant Commandant R. S. D. Hyde, R.N.

Reviews

400—*THE CAST, SECOND EDITION*. A Manual on the Treatment of Fractures. Compiled by Philip H. MANNING, B.A., M.D., D.T.M. & H. DUNN, F.R.C.P., and J. PHILLIPS, in the Hospital for Tropical Diseases, London. The Albert Dock Hospital and the Telford Hospital, Chesham; Physicians to the Colonial Office and Crown Agents for the Colonies. Deputy Director, Bureau of Colonial Medicine, London. School of Hygiene and Tropical Medicine. Lecturer on Tropical Medicine in the London Hospital, the West London Free Hospital College and the North Eastern Postgraduate College. Corresponding Member of the Société de Pathologie Exotique. Vice-President of Tropical Medicine in the Colonial Board of the Royal College of Physicians and Royal College of Surgeons, England, and in Queensland and Hong Kong Universities. Fourth Edition. Revised 1932. London, Frowde, Netherland, and Sydney. Gresham and Co. Ltd. Pp. 1222 + 16 plates. 27 coloured plates. 15 half-tone plates. 225 figures, 6 maps and 26 charts. Price 75s. 6d. net.

Review.—Tropical Medicine is no well known, and is widely read, by general medical officers that is to say, by generalists, as well attention to it, yet the knowledge of bone in tropical medicine is increased and it is our duty to keep ourselves up to date as far as possible on this subject, and this possibility is provided for by the publication of this *Text-Book*.

In this edition, as in those of the past, the authors seem to us to possess a value for those who get their medicine at the bedside but in view of the increased knowledge he has acquired the clinical material in the volume at the expense of one medical subject. This no wonder to be to our advantage.

but by far the majority of the more or less diagrams which we see are simply described and illustrated in this book. We have not space into conditions which are properly treated from this volume but we encourage the need with care to a specialist the diagnosis or understanding of diagnosis in the context of the patient and his own two enlightenment. Yes, therefore, hope that this work will return to general practice and care.

We feel that the publication of the third edition is more than the second edition that the quality of the value of this book is shared by all those who are engaged in this subject.

The presentation of the book is excellent and we especially appreciate the author chapters on General Medicine and Pathology, Signs and Symptoms, General Diagnosis and on General Diagnosis, but the subsequent consideration of the diseases dealt with in books up on the fundamentals described in these chapters, this is our opinion makes the book a pleasure to read, in addition to providing the data to the current edition of such problems, in diagnosis. A further chapter which appears to us to be the most one needed, *Some of Indications* Diagnosis for Students. This notes various types of conditions and includes those also diseases in which the type of signs appear. Further chapters on these also diseases can be found elsewhere in this or other books.

The illustrations are excellent and equal to any we have seen, the type and printing are clear and easily read. This book makes and publishes here given us a delightful book which we thoroughly recommend to all general medical officers, in addition to those for whom it was primarily written—students and general practitioners.

Examiner, Hospital Reports Vol 18 1965 Alderley Gate and Poles, London. Pp. 640, with 16 illustrations and figures, 16 charts and graphs and 2 tables. Price 16 6d postage 1d, *delivered* from the Inventory The Hospital for Diseases, Birmingham, London, S.W.3.

These Reports comprise a collection of papers recently published from the *Dumpton Hospital* in various forms.

The first and longest article deals with the recognition of life in pulmonary tuberculosis and contains a carefully analysis of 6,700 cases. The severity of early diagnosis is stressed and the high value of detecting cases before the production of symptoms is stressed as a goal at which to aim. To this end the most valuable must be directed to recording various signs of pulmonary tuberculosis are considered and the important question of prognosis in this disease is discussed. An *Index* *Diagnosis* *Grav* is included on the treatment of lung cancer tuberculosis are carefully presented and helpful. The paper on the effect of the disease that and on complications in the presence of lung cancer is a note of hope for distressed patients from this disease.

A note is given on the respiratory-vascular system, and two cases of acute colitis following isolated leucocytosis are discussed.

The remainder of the book consists of a series of studies of a most practical nature on the medical and surgical aspects of various lung diseases. It is well known that most studies have been made from the surgical side and from histological procedures are now carried out with a minimal mortality and with results, simply justifying their performance.

Coming from the *Dumpton Hospital* these reports have the stamp of high authority. Written by men of wide experience with a wealth of clinical material in their hands, the results is a compendium of information on what is most modern and efficient in the diagnosis and treatment of pulmonary disease. This is a book for all to read.

MANAGEMENT OF SURGERY. By ROSE B. MEYER, M.D. (M.B. F.R.C.S. Edinb.). Medical Officer, Glasgow Medical Service, University Lecturer, Peter Royal Infirmary, Edinburgh, Assistant, Department of Clinical Surgery, University of Edinburgh. Surgical Specialist, Military Hospital, Scotland Generalized. With Foreword by JOHN FRANK, M.D., M.B. F.R.C.S. Edinb. Senior Professor of Clinical Surgery, University of Edinburgh. First Edition, 1930. Edinburgh: E and S Livingstone. Pp. 366 + xv, 55 illustrations. Four life-size and one photographic.

THIS is a new book and the author's reasons for it is that he was requested to write it by some of his former students.

The book is based on the lecture notes used by the author in his classes in First Examination in Surgery and is, as he puts it, "carefully arranged for the first degree student." It urges the student to make his own notes and to consider it as but a supplement to the larger textbooks.

Professor Fraser, who has written the foreword, says he speaks of the book. "I do not know what use the student of medicine has made, but I imagine that it was to produce a book which would prove of value to the undergraduate. It seems to me that if this was his aim, Mr. Meyer has achieved success, but I believe that he has done something more for it is my impression that he has returned the debt so thoroughly that the post-graduate paid back a new debt which nobody will feel need to interest him within the pages of this volume."

We should however before differing from the commendation of Professor Fraser, but in this case we have no difficulty in fully accepting his opinion though we accept it from the point of view of those post-graduates whom he mentions.

Unless we are truly ignorant in Surgery it is our duty to keep before us the fundamentals of surgery and those conditions which are most commonly met with in our sphere of work, while when we have these conditions we are faced with the most difficult surgical procedure also are they to ourselves and our patients to seek the opinion and assistance of a specialist.

In post-graduate work, we consider that Mr. Meyer gives us that fundamental information which is necessary to us.

We have taken the chapter headed "History" there are the headings of general information given in an "Anatomy," Anatomy of Blood Vessels, Blood Supply of the History, Nerve Supply, System, The Bladder, Urinary System, Peritoneal Membranes of the Abdomen, Special Anatomical of the Head, Neck, Endocrine Glands, Methods of Examination of the Prostate.

Having digested these facts, we enter in a section on "Symptomatology," that is followed by a consideration of individual injury, conditions of which are necessary to detail here. This gives an indication of the author's approach to his subject.

The volume concludes with, the type and grading notes, all of which add to its value. We have no hesitation in recommending this book to all medical students.

MANAGEMENT OF SURGERY. By HANCOCK (Edinb. F.R.C.S. (Eng.)) Surgeon, Royal Northern Hospital, London. Surgeon and Otolaryngologist, Essex County Council General Hospital. With 514 illustrations of which a large number are in colour. Second Edition. Edited John Wright and Sons, Ltd. London: Simpkin, Marshall, Ltd. Price 30s. net.

THIS, the second edition of this work appearing so soon after the first edition, must have proved its popularity and worth.

The first edition was published in two volumes in the cloth and leather covers the two volumes have been incorporated into one. The book is bound, otherwise the text has been revised throughout and some sections have been revised.

The writer has not overlooked all possible, i. e. possible which do not depend on conditions, but even when he himself has limited data on early surgical operations, and so that he has undoubtedly achieved his object.

The writer covers the whole field of diagnostic surgery and so even, even the operations, although in clearly described and so even more illustrated with diagrams, some of these being of interest.

Many of the operations described are suggested by actual cases which have been limited by the Author. This makes the book more interesting to read and even more practical in the diagnosis and treatment, which otherwise, might have been overlooked.

The book is excellent and the photographs and diagrams are beautifully reproduced and simply illustrate the text and the operations described.

We can thoroughly recommend this work to all who may be called upon to operate on a surgical emergency case.

Four Quizzes on Surgery. Volume I. Edited by Rufus M. Spigel. F.R.C.S. Eng. Introduction by Lord Horder. R.C.M.G. C.B. M.B. F.R.C.S. Three volumes with six plates in each volume. Royal five, about 1500 pp. and 1500 illustrations per volume. Price of set of 3 vols. 30 6s. net. Separate volumes, 12 6s. net each. 1938. London: Medical Publications, Ltd.

Volume I just published, contains: Part I, Appendices; II, Abdomen; III, Thorax and Lungs; IV, Nervous System; V, Radical Treatment of Malignant Disease.

The present work is written by the most eminent of British surgeons. Each subject is dealt with in a most comprehensive way by its own special writer.

The problems of diagnosis which are of a very high standard, being being proposed and done by writers during actual operations, are most interesting and make the descriptions of the many operations very truly understandable.

Volume I certainly meets the very high standard that was predicted for it. The articles are easy to read, with little or no padding. Having read the first volume we eagerly look forward to the publication of Volumes II and III.

We consider the work to be for and among the best written on Surgery as yet published in Britain and consider that it should be in every hospital library.

PAINFUL AND DANGEROUS DISEASES OF THE EAR. By R. R. Woods, M.B., F.R.C.S. Lecturer in Charge of the Ear, Nose and Throat Department, St. Patrick's Hospital, Dublin. First Edition—1938. H. K. Lewis, Ltd., Oxford University Press, Amen House, London E.C.4. Pp. 186 with 4 plates. Price 15s. net.

The author of this book has set himself the task of instructing his readers how to recognize and forestall such painful and immediately dangerous conditions of the ear as well as general practice, and we have no hesitation in saying that he has succeeded.

The first part of the book is given up to general anatomy, the use of many words and a wealth of illustrations. There are no unnecessarily technical details. For instance, in describing the middle ear, the author says "the internal shape is internally flattened, while the upper of its narrow parts are not likely to be compressed." The reader will find these statements in Fig. 1.

Under Part II, pathological changes are dealt with, and Parts III and IV deal with acute middle ear and external otitis respectively.

Only three aspects of otology with which the general practitioner has to deal are described. No space is taken up with the details of major operations, but with this book to refer to, the doctor should have no difficulty in dealing when called in the emergency.

The treatment of feedings was not formally described, and we are glad to see that the authors emphasize the use of oral and/or nasogastric feedings, promote an active mother, and like to stimulate. In order to give the value of maternal degree, whether indicated or not. A short response in terms of colored images. They should describe the number of cases of patients with probably much response to stimulation and to crying notes, which are used in the specialized hospital, etc.

There are four different plates, each containing six pictures of sympatric *gambusia* fish in a pair. There is one picture of a normal female

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Business Done By The Elder. Published by John Hale, General Dispenser,
Laid. Worcester. From the old one.

This tale was written by a naval officer for his young son who lived on a lonely North Atlantic Island. It shows how one Edinburgh schoolboy, between the years 1810 and 1820, a "distant workshop on a Scottish seacoast town, told the tale of a spiritual student on Fotheringhay Island the West, with many adventures into shipwreck. It deals with the tale, was an event from the past and was, later, later, later the center from. Number in Korea, in Taiwan, in China, and from the United States. Several such many days spent on the East and West African Coasts, and on the shores of the sea. The author is familiar with South Africa and writes of all persons and land, sea (South and North) with knowledge and affection. We recommend this description of a beautiful island, people and of mountains in Taiwan, in China, where he was in charge of a boarding party early in 1911. He shows a remarkable grasp of the island and a fine sense of humor. A full course of the book will be published in one or two volumes.

House of the Carpenter

2004-05-11 10:00

2002 — Journal Number 4, No. 4: engagement with the Commission shows us & if we
 (see also 2001)

[illegible]

¹ Application has no correspondence within the set of natural numbers, see J. P. M. Aarts (1984, 1985), and within the set of ordinal numbers, see for instance J. P. M. Aarts (1984, 1985). The latter result is proved in the present paper.

146. The above charges, however, are not in themselves sufficient to establish a presumption that I am guilty of the offences charged, and the Crown is required to establish that I am guilty of the offences charged to the satisfaction of the jury. I am not guilty of the offences charged to the satisfaction of the jury.

4.2.3 *Statistical analysis* (1-10 pp., 4.3-4.4) and concluded by the author: "Given the nature of the data, the following statistical analysis was used."

1944.—James Alexander & Royal Naval Dockyard, Norfolk. Board and Working Agreement.
 Cox, Thomas, Nelson, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

The second stage of the long discussion of the bill took place Thursday morning in the public debate in the Swedish Riksdag. There the bill was discussed in the presence of the members of the Riksdag and the public. The bill was then adopted in the Riksdag.

¹⁰ For more on our paragraph 1 of 1 P's relating to a Board and Working Agreement of the 14, see also in *James*, *James*, also in *James*.

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1999. *Journal of Interpersonal Violence*, 14(10), 1103-1110.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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2000) referred to in 2 P.O. 2000/10 paragraph 10, Internal Revenue contained within Section 3 would also permit the option of being eligible for the Federal estate credit. I have reviewed paragraph 10 of paragraph 3 (2) of the Bill. Some potential issues on either statute may arise in Section 1, 101, and it is possible that the 2000 already will have the right to make certain changes that I believe will be necessary.

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*Map of Thailand indicates the sites visited during collection of the specimens. The numbers correspond to the numbers in the text.

The nature of the Fe^{2+} in the high-temperature polymers is consistent in detail with the Fe^{2+} species in natural sulfidates and iron disulfides.

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The reported potential savings of savings and deposits which appear to be achieved after the implementation of the good work days by the long established bank. To meet the expanding demands upon savings and to all those customers to the bank of the same nature, it is a good idea to use a good work day. The good work day is a good idea to use a good work day to meet the demands of the bank of the same nature.

Two portraits in glass cases. Photo of General Sir Henry, young, uniformed. On right is a portrait of a young man, white, in his 20s, in uniform of a young soldier. Both are in the style of the 19th century. The portrait of the young man is the 2nd portrait of the young man. (Photo of General Sir Henry, young, uniformed. On right is a portrait of a young man, white, in his 20s, in uniform of a young soldier. Both are in the style of the 19th century. The portrait of the young man is the 2nd portrait of the young man.)

Drinking Culture, Principal Lecturer, International Conference on Alcoholism, is a Professor at the Research Institute, the Royal Medical College, Royal Medical Department, London, U.K. He is co-author of the book *Alcoholism and the Social Sciences* (1980) and *Alcoholism and the Law* (1982).

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Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher for the 10 trials condition than for the 5 trials condition. Error bars represent the standard error of the mean.

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WARDMASTERS

Wardmaster (General) J. J. (1904-1910) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1910-1911) to R. M. Wardmaster, Chichester.

ROYAL NAVAL VOLUNTEER RESERVE

OFFICERS

Mr. W. B. Taylor, M.D. (1904-1910) to R. M. Wardmaster, Chichester.
Mr. W. B. Taylor, M.D. (1910-1911) to R. M. Wardmaster, Chichester.

Mr. W. B. Taylor, M.D. (1911-1912) to R. M. Wardmaster, Chichester.
Mr. W. B. Taylor, M.D. (1912-1913) to R. M. Wardmaster, Chichester.

APPOINTMENTS

1904-1910

Wardmaster (General) J. J. (1904-1910) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1910-1911) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1911-1912) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1912-1913) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1913-1914) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1914-1915) to R. M. Wardmaster, Chichester.

1915-1916

Wardmaster (General) J. J. (1915-1916) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1916-1917) to R. M. Wardmaster, Chichester.

1917-1918

Wardmaster (General) J. J. (1917-1918) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1918-1919) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1919-1920) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1920-1921) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1921-1922) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1922-1923) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1923-1924) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1924-1925) to R. M. Wardmaster, Chichester.

1925-1926

Wardmaster (General) J. J. (1925-1926) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1926-1927) to R. M. Wardmaster, Chichester.

1927-1928

Wardmaster (General) J. J. (1927-1928) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1928-1929) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1929-1930) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1930-1931) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1931-1932) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1932-1933) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1933-1934) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1934-1935) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1935-1936) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1936-1937) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1937-1938) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1938-1939) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1939-1940) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1940-1941) to R. M. Wardmaster, Chichester.

1941-1942 and 1943-1944

Wardmaster (General) J. J. (1941-1942) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1942-1943) to R. M. Wardmaster, Chichester.

Wardmaster (General) J. J. (1943-1944) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1944-1945) to R. M. Wardmaster, Chichester.

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING SERVICE

OFFICERS

Wardmaster (General) J. J. (1904-1910) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1910-1911) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1911-1912) to R. M. Wardmaster, Chichester.
Wardmaster (General) J. J. (1912-1913) to R. M. Wardmaster, Chichester.

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4. **Results**

5. **Conclusion**

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a	2000	14 years old	Grandfathered Month
a	2000	16 years old	Wax Month
a	2000	16 years old	Grandfathered Month
a	2000	16 years old	Grandfathered Month

I certify that I have examined the foregoing report of the Board of the National Board of Fire Underwriters and find that it is true and correct in all material particulars and that the same is a true and correct statement of the facts and circumstances therein stated.

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Brigitte, aged 75, and Hans-Jürgen, who died in 1940. The couple who live together have no common grandchildren from Charlotte Paula and the 84-year-old Hans-Jürgen. They have to assume that they will be the only children from their parents. Hans-Jürgen's 20-year-old daughter, Brigitte, lives in the West German town of Garmisch-Partenkirchen. She is married to a 21-year-old

JOURNAL OF THE ROYAL NAVY MEDICAL SERVICE

Baker, David. 1993.

Account	Debit	Credit	Balance
Balance on hand, Dec. 31, 1974	100	0	100
Trade Receivables, Less: 10% per 1/10	100	0	100
10000 Note, 10000 per 1/10	100	0	100
Trade Receivables, 10000 per 1/10	100	0	100
Total	300	0	300

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41. JOHN WILKINSON.

Journal of the Royal Naval Medical Service.

Original Articles.

SIR JOHN HUTCHINGS, SURGEON, PHYSICIAN, MARINE
EXPLORER, NATURALIST, SCHOLAR.

DEPT. A. MARANT & CO. LTD.

Editorial Department, Medical & Dentistry, Bristol.

There is here in a long, full life of many adventures that would have been after Ogle's own heart? A ship surgeon fighting Napoleon and on American duty in 1814, a physician also, a surgeon after the South West Passage on those expeditions, a naturalist—last to write about the fauna and flora of the Arctic Circle—a hospital administrator and reformer. Hutchings lived to know Copley, to interview Florence Nightingale and to find a job stayed for a time longer, surgeon called Huxley brought up to the fact of Robert Burns, who spent Sunday evenings in his father's home and chose the boy's poetry. Hutchings lived to show the bodies of Archibald Trench and Max Müller, and to work out a study of the vocabulary of the ploughman poet.

John Hutchings, son of Edward Hutchings, one-time chief magistrate of Dunstons, and Anne Mansell, his wife, was born at Dunstons on November 5, 1797 the eldest of an old-fashioned family of twelve children. In the very people nature of the day he learned to read at home and afterwards, at the early age of 4, was sent to school. In those days and so purposeful, numerous Scotland no more could be named as merely being a boy. At the age of 12 he began a three years apprenticeship to his uncle, an eminent surgeon of Dunstons. On the death of this uncle he was sent to Edinburgh, where not yet 14, he began the formal study of

History of a paper and follows the historical Medical teaching, with Henry of Medicine at the Annual Meeting of the British Medical Association, Glasgow 1890 and published in the British Medical Journal January 25, 1891 and reprinted from the first possession of the Editor and of the Editor.

surgeon, would certainly command the same. Indeed, in accordance with his family wish, the young man, completing the first and second of his apprenticeship at the Hospital and following education, and destined to follow. Thus he was an earnest student and a reliable citizen. In his eighteenth year, with already six years' experience, he returned to formal study at the University. There, then, constantly into surgical studies and experience, the boy intensely had a liking for Science and outdoor life and delighted in long rambles in the country. This hobby, which was to become almost a mania, shaped his whole life.

In 1806 Napoleon was opening Europe and the British Navy was vigorously on the job. It became the nation's young men of 19 to measure both for country's need and the duty of getting a job for himself. His appointment for an overseas apprenticeship in the Navy—being only fifteen months and was quite easy. After a brief leave he set off for London by the stage and travelled three days uneventfully and uncomforably, but just safely, and arrived in London, as would be expected in his spirit. Here, he met his old companion, Robert Burns, junior, began to speak English and with scruples, dined daily on a portion of roast beef and a pint of ale, passed the examinations of the Royal College of Surgeons, of London, and was appointed, not yet 19, assistant surgeon to the *Hygeia* frigate. His ship mounted forty-two guns and sailed well. The officers were civil, the gunnaries vigorous, and the young Gent wrote home:—We shall soon cheerily and comfortably.

Off Portugal there were "sailing out" expeditions—ships, of course, not cannon—in which the young surgeons gave evidence of soldierly spirit as well as surgical skill. In so the line of promotion he became master-boat surgeon on the flagship *St. Lawrence*, being surgeon of the *St. Lawrence*—14 guns—and, later the same year, when not yet 21, full surgeon to the *St. Lawrence* ship of war. In 1812, at the age of 21, came a leave of absence, mostly devoted to study in London, where, with characteristic forthrightness he had not twenty pounds in taking permanent leave for surgical and anatomical lectures, so that at any future time he might attend free of expense.

In the latter winter of 1812-13 the Grand Army of France perished and the waves of Russia, and Napoleon came back to Paris. *St. Lawrence* and *St. Francis* was paid for a time. *St. Lawrence* was again sent. The *St. Francis*, with surgeon Richardson, joined the northern coast for American operations, was disabled and paid off, and the young surgeon got some further use of his London loan. In the summer of 1814 he was appointed to the 1st Battalion of Royal Marines then in America, and got long service on the Texas Lakes, stretched and sailed with half the battalion from Montreal—specifically following London times by the way—for service along the coast of Oregon.

Richardson had no heart in this American service, he thoroughly hated the "padding" system of warfare which seems to degrade the

British character without uniformly rejecting the wrong thought (6). British stood upon Washington especially the burning of the public library. "Influence," means means that the conduct of half-civilized Americans in France, and was thoroughly reprehensible about the selling of the property of the surviving soldiers. Even as he wrote he had to deal with frustration and apoplexy were the order of the day. Fortunately for the hour the two nations and the world, peace was soon concluded and shortly afterwards came the great general peace following Waterloo.

With peace came half-pay two years further study to add to his expanding the study superior status of physicians, their manners and an attempt at practice in Paris. His professional focus, making use of his American experience was *the Johns House*.

From the moment of the beginnings of practice he was kept by applying for the position of surgeon and naturalist to the first Arctic expedition of Lieutenant afterwards Sir John Franklin. The report on his knowledge of natural history being satisfactory, he was appointed, and was made second in command of the expedition as well. It was his appointment, not his training that brought him this appointment with its opportunities. When Richardson met Franklin he wrote of him as "a steady, religious and cheerful man, and altogether an honor to the profession." Franklin might have written much the same of Richardson, though we doubt if he was as cheerful. The work expected of Richardson as second-in-command was to collect minerals, plants and animals and observe phenomena generally. He confessed that his knowledge about these things was very limited, but did all he could to extend it and looked forward to "a rich harvest in a country never before visited by a naturalist."

The *Hyacinth Bay* Company's ship *Prince of Wales*, sailing to York Factory in 1818, was held back by ice and nearly destroyed. On board with the party were men, women, and children, bound for Lord Selkirk's Red River Colony. Even the women took part in the puns. The Selkirk sent the explorers a year of time for they were forced to winter as further relief than Lord Selkirk's House and to spend a winter under at Great Slave Lake, before the real adventure began. In nearly two years of preliminary travel, preparation and weary waiting, when Richardson the leader, or the surgeon, seemed to be at home. Richardson the naturalist was always surprised.

At the opening of the season of 1821, the party of twenty-five—English, French, Canadian voyageurs, and Indians—went out, against the advice of the fur companies' experienced travellers carrying not more than a day's provisions and having no canoe for their return journey, descended the Coppermine reaching its mouth in July, and explored two miles of coastline to the eastward before they decided at Cape Harrison that it was time to get back to winter quarters. Then everything went wrong, and the story of the return journey is one of the fragments of all the Northwest tales. It is worth reading to see what human beings can endure. The

and the most striking of the kind of travel or of voyage in Indian country. Strong men were lost. Consumption broke out among the Indians. The survivors created back giant skeletons kept fairly alive by fire. Last skeletons and several bones scraped from the snow. Other misadventures, and the many untold griefs, and gazing before the eyes of the Indians about the land, his own country with a few more a week, or a year and a half to him to create a small Indian world.

In 1814—the year of his appointment to Chatham—it was decided to make the North West Passage of these people—on both banks and at the centre—bury again on the east. Bending through Bering Strait, and finally down the Mackenzie River. Again Richardson joined him in a not so common, unproven and unknown.

Like all the conditions were different. The leaders considered it, in comparison with the former journey, a sort of great party. While travelling on the lower Mackenzie, a trail from home seemed to Richardson the people in England 'seemed to be going and about naturally, naturally, even, even, even, even, even, even, and he supposed' the same would extend to the land also if there was money enough there to give the land with. In 1815 the party arrived back in London. Richardson, who was now 40, remained his father at Chatham, worked steadily on the carriage and scientific side of the second expedition and now, armed himself well enough equipped to begin a work he had long had in mind, his magnum opus—*Flora Borealis Americae or Natural History of the Arctic Regions* the first volume of which was published early in 1822 and the last nine years later, in 1830.

Shortly after the second expedition he was appointed chief medical officer of the *Naval Naval Hospital*, and in 1820 to the *Royal Hospital of Naval and Parliamentary*. Richardson was one of the first to bring to the notice of the public people out of the dark with in which they had been hidden, his talent to strike off their letters and straight paths, and to put them into ordinary words as patients. With the *Advocate* he finally won the day for the new treatment, not by proving that it was more humane but that it was less costly. He was also able to persuade the *Advocate* when a ship arrived off Portsmouth with a crew of patients, to let him take the sick where the beds are and hospital more rather than have them to wander between decks or the deck or aboard ship.

In 1822 came promotion to the post of Inspector of Hospitals by the Admiralty and the beginning of the publication of a series of papers reports and observations on a variety of subjects. It was at this time that he was knighted by the (catholic) Queen Victoria.

Frederick and Richardson returned from the second expedition in 1827. From seven later John and James Ross made another, intended again at the doors barred by icebergs and sealed by frost and snow. When plans proved and they had not returned, Richardson offered to go post reluctantly.

the expedition of 1841, and made the contents of the solid contents, secured from the mouth of Mackenzie. This also was accepted, and Dr. John Ross of the Hudson Bay Company consented to go on second in command. Richardson was now 42 and not the traveller he had been. He had a delicate heart attack. In the spring he considered it the better plan, as indeed it was, to give Dr. Ross the leadership and let him try the coast again, with a small party, while he returned to England.

As a traveller he was unsuccessive. All that he had was of interest to him. Observations of men and the ways of men, of places and events, but chiefly of rocks and their beds and flowers all two interesting volumes published after the relief expedition. The many interests were often mingled, as when he visited together botany and Indian pharmacology.

The *Stripteria rubicunda* is a corolla which abounds on the rocks of the river, is one of the native medicines, its strongest root being chewed and applied as a remedy to wounds and sores.

The leaves of the *Lupinus palustris* are also chewed and applied to sores, which are said to heal rapidly under these influences. The rule of chewed leaves is left adhering to the sore until it falls off.

The *Artemisia* grown abundantly here, it is called by the Indians 'la matre d'ore' and by the Creeks 'mangro mato (bear food)'; a decoction of its roots and of the tops of the sprouts is used as a diaphoretic and stomachic compound.

The *Artemisia* is another of the indigenous plants, whose water into the native pharmacopoeia, and is used as a remedy in colic. About the root of a small part of the root dead before the use is in the use of a dose for an adult, and the part is said to be removed soon after it is manifested and swallowed.

A drop of the juice of the root is dropped into infused water, and the remedy is said to be as effective though a painful one.

The *Artemisia* grows plentifully on these pastures and is used by the natives for the purpose of increasing the growth of their herds. They dry the flowers in the sun, powder them, and use them with bear grease.

The dogbane and Indian hemp grow luxuriantly on the sandy banks of the river. They abound in the sandy parts, where applied to the skin produce a troublesome eruption. The second period of the year is more extensive and evenly than the other, and furnishes the natives living on the coast of the Pacific with hemp out of which they form strong and durable fishing nets.

The journal of the relief expedition had 242 pages of separate and detailed appendices on geology, zoology, climatology, the sequence of events in the seasons at various places in the North. The thermometer the distribution of places north of the belt, north parallel records in the North a 48-page appendix on trees and shrubs a 28-page list of plants and to complete the whole, a list of insects.

All expeditions went and came, adding much to our knowledge of the Arctic regions, but little in the story of Franklin and his fate. Few medical cases it may be observed, were leaders of expeditions, but John

there are the well known Franklin gill and the Richardson owl. It is to be remembered to the credit by the more practical among us also that while claims to our own day the forty-ninth parallel was supposed to be about the northern limit for where-growing Richardson, a half-century earlier placed the limit about the sixtieth parallel and reported upon records actually growing there and there.

Dehadt has his many of the interventionist houses, and some special marks of distinction as well. His was perhaps a life of industry more than a life of genius, but it was a full, good life, and in many ways even a great life. It is not every day that we meet in one person—surgeon, physician, writer, soldier, administrator, explorer, naturalist, author and worker who has been constant in most efforts and commendable in all.

SOME REMARKS ON THE HEART IN HEALTH AND DISEASE

By JAMES LEONARD L. W. VENTURE

In attempting a brief survey of the facts which are known, and the theories which are generally accepted to-day about the heart and its relations it is proposed to consider the subject under three headings: the normal heart; the so-called "functional" heart; and the pathological heart. The two latter classes have indefinite boundaries and tend to shade into one another.

The first and most important consideration in any given heart case is to decide whether it belongs to the first group or to one of the latter.

It is a commonplace that the greatest number of those who seek medical advice because they fear that they have heart disease are found to have nothing wrong with their hearts at all. And on the other hand many quite considerably deranged hearts carry on their work for a very long time without drawing attention to themselves. The history and symptoms are not, as a rule, of any much real help. Perhaps the most suggestive story is one of increasing lassitude on exertion—difficulty with the stairs is often a useful clue. But otherwise most of us are to be made for showing the lack of confidence or for long confidence such as angina pectoris.

Palpitation is of course very often of extra- cardiac origin and of small diagnostic importance, but it may be a sign of an intermittent tachycardia or flutter and careful inquiry should always be made into its exact nature and duration. Even in the region of the paroxysm in stenosis always returning to the patient may have an equally ambiguous origin, although in certain cases it may give important information.

In general however it is on physical examination, aided in particular cases by instrumental and other necessary investigations that the greatest reliance may be placed in deciding on the state of the heart.

About the methods of physical examination, little need be said here

The pulse is watched particularly attentively, and should always be examined in both sides. Inspection of the chest wall will give evidence of respiratory pulsations and possibly of the nature of the apex beat.

Palpation is of the utmost importance. A genuine thrill can hardly be mistaken and is a definite indication of organic disease. Palpation is probably of considerably less assistance than has been hitherto commonly believed. The determination of even the approximate size of the heart by this means is difficult and unreliable in cases where enlargement is suspected, massive to some extent even in those different phases is strongly advisable and should be carried out if possible and the critical graph if available will give valuable information as to the size and shape of the cardiac and vascular apparatus. Auscultation will determine the presence or absence of murmurs, and, which is more important, the character and quality of the heart sounds. Murmurs may or may not be of importance, the methods of distinguishing between those of valvular disease and those arising from other causes are numerous well known and need not be recapitulated here, and it is probably unnecessary to insist that the patient should eventually be examined both on the erect and recumbent positions, but it may possibly be less well known that there is one instance of considerable diagnostic importance which can sometimes be detected in only one particular attitude of the patient, an early and fatal aortic disease heart can often only be heard when the subject is seated, leaning well forward and with his chest in the position of full inspiration.

The detection and recognition of a murmur, however, is of infinitely less importance than the estimation of the tone and source power of the heart sounds—a fact which has only of late years obtained anything like general recognition, although it is nearly a century since Osler wrote:

'The determination of the actual size and nature of a valvular disease is of less importance than that of the real and mechanical state of the heart.'

Now a reasonably good estimate of this can be made by an experienced ear at the bedside. The "phonograph" "talk-day" has been offered to generations of medical students as the pattern and standard of the heart sounds, and although perhaps a little staid by nature, it is an infinitely reliable and useful standard. The ears study the sounds of a heart conforming to it, to quick, rhythm and accent the more likely in the minds of that heart to be sound and healthy. Allowance must of course be made for the thickness of the chest wall, and the position of the lungs. But even small departures from the "talk-day" rhythm should arouse suspicion of abnormality. Thus it may be necessary to confirm or disprove by electromicrograph and other auxiliary methods, but the latter cannot yet take the place of the trained ear and finger.

An estimation of the blood-pressure should be carried out in the course of all heart examinations, and the arrangements of the nervous system not forgotten.

The so-called cardiac tolerance tests are popularly well earned out, but their results are unfortunately often misleading. It is probable that the immediate response of the heart to exercise and the time of return to its basal rate thereafter depends more upon the state of the cardiac innervation than on the condition of the muscle, and the former is influenced by so many and so unpredictable factors that such statements are of little practical value. We are working in a different direction; it is as Macleod has said, 'like trying to measure a foot with a foot rule'.

To complete the examination of the heart, it is desirable to have an electrocardiogram taken if facilities are available. This will indicate, in exact terms, the condition of the heart muscle, and the conducting tracts, the degree of electrical impulses, and the nature of attacks of paroxysmal tachycardia, flutter and other electrical disturbances. In many cases a precise diagnosis is impossible without it, and this unfortunately the electrocardiograph frequently fails to disclose, notwithstanding great experience, and too explicit reliance must not be placed on it. Especially, in the presence of chronic diastolic heart failure, the instrument will record normal tracings. And it has been estimated that in over 10 per cent. of cases of established coronary disease normal electrocardiograms have been at one time or another obtained [1].

However, if the instrument be employed in its true capacity, as witness and not as judge, it can be trusted under the most valuable conditions.

Such, then, are the principal reasons at our disposal for determining the true state of the suspected heart.

And here perhaps a suggestion may be made touching the examination of patients in whom cardiac examination has revealed no reasonable confirmation of heart or coronary cardiac disease.

Few things in the domain of medical practice are absolutely certain. And in the mind of even the most able and experienced clinician, after the most exhaustive examination of certain heart cases where no definite heart can be found, there may remain an element of doubt.

That it is rarely justifiable to communicate such doubts to the patient, and considerable harm may be done by the 'your heart is possibly a little weak' type of diagnosis.

As Currier says with truth and eloquence: 'in the lay mind, anything wrong with the heart, however slight, compares up future, or even present, possibilities of sudden death, and it is less that it is at the root of their symptoms.' Once we have satisfied ourselves that the heart is healthy, it is our duty to assure the patient that there is nothing whatever wrong with his heart, and that no restrictions of any kind are necessary. I am fully alive to the fact that as a few years ago doctors came a certain risk to his reputation by giving such advice. This is especially true in the case of those nervous patients without any physical signs of organic disease, whose history is suggestive, but not conclusive, of angina pectoris. I can hear I

think one is usually justified in the patient's interest in coming down fairly on the hazardous side of the diagnostic fence and taking an entirely optimistic view of the future in the patient even though one may have some personal reservations as to the diagnosis. Undoubtedly we take a certain amount of risk by telling such a patient that there is nothing wrong with his heart and no need for any restrictions. But it is the only means of curing the patient who never knows the risk we run in effecting his cure. [2]

Four kinds of lesions have already been referred to. Their characteristics are well known, the criteria of their identification sufficiently well established, and their importance universally agreed on, but reference may be made to one type of case which may cause considerable doubt and difficulty, and which is not infrequently encountered in the hospital, particularly with chronic and rare cases. We are all familiar with the typical effect of even average height and under average physique, whose regular and liberality eating habits usually strikes the physicians, the apex may be seen, and felt to or even inside the nipple line, the first vessel sound is loud and florid, and may be redistributed, and it is sometimes accompanied by a systolic murmur, yet the history shows nothing suspicious, and the most patient and thorough examination fails to detect any definite lesion: any valvular lesion, any tuberculous or degenerative tendency, or in short, any cause at all. Such cases are difficult problems, particularly with regard to the question of restricting. Each must be decided on its own merits. It seems likely that some are cases of congenital valvulosis of the aortic valve and rigid components of the construction of the heart, with or without pericarditis; some are the manifestation of a systemic disease; the underlying cause may be anemic or general malnutrition, and many cases will be found to clear up with good and regular food and improved hygienic conditions. But it must be remembered that every tachycardia is a tax upon its own source on the reserve power of the myocardium, a tax which must sooner or later make demands on the expendable reserve in the rate of the heart taken place at the expense of the diastolic period, systole is never distal. When it is during diastole that the greater part of the coronary circulation takes place, upon which the health and longevity of the myocardium depends. The shorter the diastole period the less blood supply will the myocardium receive, and sooner or later the deprivation must make itself felt.

Further, and even there must be a tendency to the formation of a vicious circle for the more impoverished the heart muscle becomes the less its contractile force, and the less its contractile force the faster it must beat to maintain the system's circulation.

The treatment of such cases must be equally undetermined, and is often difficult. There is no specific, diagnosis has unfortunately failed to be of aid.

A strikingly different condition, the very slow or "sineus" heart, as it has been called is occasionally, but more rarely, encountered.

Thus the average pulse rate may be found to be about 50 or 60 and the rhythm regular. However, may produce a sudden return to normal rate. The cardiac response is in the form of irregular block—i.e. impulses from the sino-aortic node, the normal pace maker, fail to reach the muscle of the ventricle, and are therefore cut passed on to the ventricle. The interruptions may come sporadically, or may arise at every other beat, with the result that the pulse rate is periodically halved. The condition is very rare; it does not appear to have any particular pathological import, and is a chiefly of academic interest.

"Fainting fits" of various kinds may perhaps be classified with functional heart conditions, although they are for the most part due to weakness rather than purely cardiac disturbances. There seem to be determined by a disturbance of the sphincter muscle with a fall in blood pressure and consequent cerebral anoxia. Loss of consciousness due to changes of the heart action is rare, and does not appear to take place until the rate has fallen to less than twenty beats per minute. These attacks are sometimes associated with general debility but may be precipitated even in the apparently healthy by such stresses as fatigue, bright or emotion. The subjective symptoms are often extremely distressing, and not infrequently associated in a sensation of impending dissolution. But recovery is the rule, and treatment is entirely satisfactory, rest in the recumbent position, with application of alcohol and aromatic volatiles soon after being about rapid improvement.

While considering functional possibilities of the heart, it may be as well to make some mention of the phenomenon known as sinus arrhythmia, although strictly speaking this is rather a normal cardiac function.

The irregularity, which is of very frequent occurrence in young adults, and often indeed, persists into maturity, takes a clear and definite rhythm during the phases of respiration. It will be found, in the vast majority of young and healthy hearts that there is an acceleration of the rate on expiration, with a marked slowing sometimes a temporary cessation of the heart, on expiration. It is as is now generally accepted, by no means a pathological condition. On the contrary it appears to be an indication that the heart muscle is active and responsive.

In health, the heart rate and rhythm depends, as has been said, upon the relative preponderance of the vagal and the sympathetic components of its innervation.

The result of any abnormal stress on the organism, such as extreme emotion or malnutrition, or the increased stimulation caused by an acute infection appears to result in stimulation of the sympathetic, with consequent tachycardia. Vagal stimulation on the contrary, will produce slowing of the heart. The marked tachycardia sometimes observed after some fevers for example appears to arise more attributable to a residual vagal neuritis. In the presence of any considerable degree of tachycardia, indicating sympathetic stimulation the phenomenon of sinus arrhythmia

cannot be denied. As a corollary to Bruce Williamson has pointed out, it is reasonable to assume that the suppression of this irregularity is in and through that excessive sympathetic stimulation is diminishing, and this assumption is, approaching the verge of its normal position. "After some such relation," he says "the nature of the vagus cannot retain such deep features have been eliminated. Therefore the sympathetic domination and any loss which has occurred in the aortic valve. When the heart rate is free from both these influences, the vagus returns to its own, and we see a resumption of the same irregularity which is often most marked after growth. Definitely, we can say that some tachypnea, with marked bradycardia during expiration is inconsistent with active heart relation. Moreover, the suppression after starts in position is a sign of prime importance, but it marks the location of the sympathetic from stage and stage. Finally, it also denotes that any improvement of myocardial effect is not great, for some tachypnea implies a heart performing its work with ease, so much so that it is ready, say almost eager, to respond to its work, no matter how trifling there may be. An extraordinary point is that not such work as this is meant, for it is much employed in maintaining the ordinary circulation *expansio* has" [4].

Further, he has derived an another principle, a test which may prove of considerable value in distinguishing between physiological or psychic tachycardia and those of definite organic origin, and which he has called the "spasm test." In the presence of psychological or emotional tension, the stimuli are transferred from the higher brain centers through the medium of the sympathetic to the two branches side, and thence through the vagus cardiac, nervous mechanism to the heart muscle, causing acceleration of the rate, which may be started and permitted and may easily simulate those influence or organic change. Such sympathetic stimulation is not however of any great intensity, and is easily neutralized in the healthy heart by its reserve of vagal activity. The vagus may easily be stimulated by the simple procedure of holding the breath. And the working stimulus is so most easily strong enough to overcome a purely psychic domination of the sympathetic with the result that the heart rate slows. In putting the test into practice the patient should be instructed to make a few deep breaths in and out, and then, with the chest either in full expiration or expiration to hold his breath for as long as possible; any considerable slowing of the rate may be taken as evidence of the absence of any pathological reason for the tachycardia.

In approaching the consideration of the abnormally diseased heart, the broad classification into diseases of the valves and diseases of the myocardium suggest itself although they are, of course, frequently and unfortunately bound up together. It is not proposed to deal here with acute cardiac infarction, but to refer to the chronic conditions commonly encountered. Although many infarctions and many forms of localized and changed organs are capable of damaging the heart, those which most frequently do

valves, particularly the aortic and mitral. That is, that which I now take to be well as the output of a valve depends. The mechanism of their production is understood, and their therapeutic effect is doubtful. Up to a few years ago, a very great interest in the treatment of heart was devoted to the study of valvular disease, it being, that is, in the precise location and timing of murmurs, and the character of the exact pathology of condition of the valves themselves. And there is special the fact that again and again post-mortem examinations revealed little or no correlation between the degree of stenosis of the valves and the amount of cardiac function suffered by the patient during life. But it is now generally accepted that the condition of the myocardium is of much more importance than that of the valves, and that the problem of the treatment of valvular diseases is simply that of keeping the heart muscle in as healthy a condition as possible. Activity must naturally be restricted in accordance with the severity of the lesion, but control should be as far as possible and every effort made to avoid long inactivity. In the case of lesions due to rheumatic infection, no specific treatment is indicated unless an acute myocardial complication supervenes. In the case of syphilitic involvement, must be suggested by the patient's condition. The pathological effects of syphilitic infection on the walls and on valves are well known; the interval between primary infection with the spirochete and cardiovascular changes may be long—as long as twenty years. But duration of life thereafter, as a rule, is short. The prognosis is bad, and the results of treatment often disappointing. Arterial preparations must be used with caution, and only in selected cases. The generally accepted criterion now appears to be that in the absence of symptoms, a course of N & B may be given supplemented by mercury or bismuth and control of potassium intake. Patients with dyspnea or pain should have judiciously chosen of mercury and iodine after which sulphurated to about 50 mgm to 500 mgm) three weekly followed by N & B if no cardiac dilatation develops. Cases with signs of cardiac failure should receive no specific anti-syphilitic treatment until the failure has been overcome, after which they may be treated similarly on the lines indicated above.

We may now pass to the consideration of myocardial defects in general, in which two main varieties present themselves—systemic with normal rhythm and degeneration with arrhythmia.

The former class contains a large number of cases such as were formerly classified coronaria, vagus or fatty atrophy, "senile" and so forth, and the symptoms in many cases are a partly vague. They tend to come chiefly after middle life and may include increasing breathlessness on exertion, diminution of working power and possibly paroxysmal pain.

The pleural signs are often indefinite but there may be weakness of the first heart sound, with a tendency to "no-no" rhythm.

Various ingenious but somewhat complicated methods of retarding the rate of circulation and various pressure have been described, and these

if they can be applied, may be of assistance. Slowing of the circulation and rise of venous pressure are indications of important heart failure, and, if delayed in time, will point to the necessity for taking measures to arrest it. If failure satisfactorily develops, marked abnormalities of rhythm may supervene. But in many cases, particularly those attributable to hypoxemia and toxic apoplex, normal rhythm may be preserved almost to the end.

Treatment in these cases also involves itself into a regulation of the mode of life. The patient must be content to live within his limitations, adhering faithfully to the golden rule of moderation in all things—a something and surely digestible diet and long hours of sleep are highly desirable, and a whole day in bed at regular intervals is of great benefit.

In the class of myocardial disorders with normal rhythm come two other pathological conditions of great interest and importance—coronary stenosis and coronary occlusion. The former has been the subject of copious investigations and researches for years—the latter has only recently been included as a clinical entity. The two conditions have much in common. They are both characterized by attacks of intensely agonizing substernal pain, and they are both apparently due to shortage of blood supply to the heart muscle, but there are important points of difference.

It was noted by MacCormac in 1923 that "pain arises in the myocardium when the supply of oxygen to the muscle is inadequate for the work it has to do" when the blood supply to the muscle is deficient on account of narrowing or distention of the coronary artery. And this has been fully definitely established by subsequent workers as the primary lesion in both coronary stenosis and coronary occlusion. But the great difference between them is that in stenosis the cutting off of the blood supply is more or less of a temporary nature due to a demand from the myocardium, arising from some mechanical stress, for more blood than the coronary arteries can at the moment supply, whereas in coronary occlusion there is a definite and permanent blocking of a branch of the coronary artery by a thrombus. Hence the fact that the pain of angina is usually always produced by effort while that of myocardial infarction may come on at any time—often during the night, when the circulation has slowed owing to vital preoccupation. Hence, too, the fact that anginal attacks will relieve rapidly by dilating the coronary vessels, whereas it can have no effect on attacks excluded by a thrombus and only supplies can manage the agony which may persist for days, for there can be no natural relief until the occlusion, area of heart muscle is dead.

Other differential characteristics are that in stenosis, on account of its sudden grave injury to the heart, there is usually a considerable degree of shock, and often severe dyspnea, features which are not as a rule seen in angina.

One other important point in differential diagnosis may perhaps be mentioned, that is, attacks of both angina and coronary occlusion have been known to show striking resemblance to the onset of an acute

abdominal cavity, etc.—and frequently in such cases, abdominal hernia have been opened in error. The abdominal symptoms appear to have been due to a reversal of the function passing whereby the pass of food out of the stomach may be referred to the proctodæum—i.e. as well as being the possibility in an old

One of the commonest examples of abnormal rhythm is the occurrence of extra or premature systoles, which are of course, systoles arising in some other part of the heart muscle than the sino-aortic node.

Any part of the myocardium is capable of originating such a stimulus, which may therefore be auricular, ventricular or nodal (auriculo-ventricular node). The causes of their production are not clear, and are probably various, and it is difficult to assess their precise pathological importance; they tend to occur with advancing years, and Markham said that they were as common in grey hairs. But they may occur at any age, and are frequently a result of some chemical irritant such as tea, tobacco or alcohol. Occasionally, however they herald the onset of definite myocardial disease.

The symptoms and signs are fairly clear. The patient is conscious, as a rule, of a pause in the action of the heart, followed by a thump. The pulse drops a bit occasionally, but the rhythm is otherwise regular. If one listens to the heart at the same time, the premature systole can be heard, though it is obviously not strong enough to make an impulse of the wrist.

The rhythm may be represented by "lubb dup—lubb dup—lubb dup—dup—lubb dup—lubb dup." Isolated extra systoles are hardly ever found in conditions of tachycardia, this is probably because isolated loss of hyper-excitability in the myocardium have no chance of asserting themselves when the rest of the whole cardiac system is stimulated to a high pitch of rapid activity.

Therefore by the simple process of reducing tachycardia by exercise, extra systoles can be temporarily abolished. The means to differentiate them from other forms of arrhythmia. Treatment for extra systoles per se is not as a rule necessary, but a modification of the existing regime of life, or a search for a hidden toxic focus, may be indicated.

Paroxysmal tachycardia is another condition of abnormal origin, often, indeed, as the name implies, by attacks of rapid heart action often amounting to 160 beats per minute, coming and going without apparent reason, and lasting for varying periods from minutes to days. They are frequently associated with most distressing subjective symptoms and dyspnoea, and may be a cause of acute anxiety and alarm to the patient. Fortunately they are seldom in themselves fatal but frequency or persistence of such attacks must be viewed with gravity, owing to the excessive drainage to the heart muscle from the interference with the economy processes which is the effect of all tachycardia. The method of problem, how appears to be analogous to that of extra systoles and auriculo-ventricular nodular varieties are described.

The more efficacious method of dealing with a paroxysm is on the majority of cases, some form of rapid stimulation and many who are subject

to the solution, had by experience a method to cure them—Examples of such methods are holding the breath, sweating, the induction of vomiting or the drinking of cold water—all individual forms of vagal stimulation. Pressure on the eyeballs or over the carotid sinus frequently elicits similar relief.

Dyspnea is felt down a staircase, but by no means always, of course on the ventricular steps, and there is a period of gaspiness and persistent awe, in which death was apparently impending which was cured by an instantaneous injection of strychnine.

In all cases, a diagnosis useful for the existing case should be gained.

Frequently, failures similar to those producing extrasystoles occur in sports, and it is of great importance that they should be eliminated as soon as possible.

If the given complaint occurs, much to be had in purely symptomatic treatment, and the patient kept in bed with restlessness during the attacks.

Heart block is a condition which may show most complicated manifestations, but the mechanism too readily be understood if the arrangement of the bundle of His is recalled. The normal cardiac impulse originates in the sino auricular node. There is no direct connection between this and the next centre—the auriculo ventricular node, impulses simply travel along the walls of the canaliculi. Beyond this they are transmitted by the special conduction tissue in the bundle of His, which runs down the septum and just before the pure myocardium divides into a right and left branch. These are distributed at first fairly in the walls of each ventricle.

The nature of heart block was demonstrated about the year 1900 by Gaskell, who produced it in the laboratory by applying a strong ligature between the bundle and ventricle in a dog's heart. By varying the amount of pressure at this point, he was able to show that two to one or three to one heart block could be created at will. The explanation of this is that pressure can diminish the activity of the cells on the junctional tissue so such that they will not discharge their energy in response to every stimulus received from the sinuses, but every second or every third stimulus may result in a contraction of the ventricle, as the junctional cells will have had time to recover.

Changes in the bundle from injury or disease at any point will result in interference with the passage of impulses. Usually, there can only be irregularities when there is a lesion of the main bundle.

Interruptions of the bundle branches can only be identified by instrumental methods: they are not of great importance in themselves so they do not interfere much with heart function but they are a definite indication of a diseased myocardium.

In almost heart-block, various grades may occur. The transmission may be interrupted either at occasional or regular intervals causing partial heart block, or it may be blocked completely. In the former case, the

condition will be recognized by the perception of missed beats. The pulse drops a beat and the heart has a smaller missed beat, no sound being audible at the apex, as it is in the case of every systole.

In the case of complete block, of course, no cardiac stimulation can reach the ventricle at all, and if this block should occur suddenly, as for example in coronary thrombosis, it will probably result in instantaneous cessation of ventricular contractions and sudden death. But if it develops more gradually or intermittently it usually does the work of the ventricular bundle until the power of organizing itself of these own, although at the very slow rate of about thirty in six minutes. This is known as the ventricular rhythm.

The very slow, regular pulse is almost diagnostic of the condition, and it is not affected by exercise or drugs, or indeed by any form of sympathetic stimulation. It is quite compatible in many cases with preservation of life provided the patient's energies be not down to the necessary limits which must be found by experiment. Of course, if any extra effort be made, disaster may follow, since extra efforts reduce blood supply for the tissues involved. The sympathetic is stimulated by the demand, but the telegraph wires are down—no message can get through to the ventricle, which pours their scattered survivors dead and blind to the outer world. But the demands of the functioning tissues must be met, blood must be withdrawn from the existing circulation, and the brain must go without. Hence syncope, and if the demand be prolonged too far a possible fatal result.

A similar unhappy state obtains in the Stokes-Adams syndrome.

Here the ventricle, for some unknown reason, suddenly drops its rate to about fifteen beats per minute. This is too little to guarantee the cerebral circulation. The patient rapidly loses consciousness—he may fall down at the onset—and become first pale and then cyanosed, with stertorous breathing. He may die in this condition, or the ventricle may resume its old rhythm, and temporary recovery take place, but of course the prognosis is bad. The average of 1,000 strokes volume (18 to 16 ounces) move over each second, and therefore in 4 gr. 4000 ounces in a day has the been used with success (8). The general treatment of chronic heart-block depends on the underlying cause, which infrequently the treatment is applied.

Two other pathological conditions with abnormal rhythms may be discussed together—sinusoid fibrillation and auricular flutter; then, we closely related conditions although the clinical signs may vary considerably. In fibrillation the regular discharge of impulses in the sino-auricular node is abolished, and instead an impulse occurs round and round the atricle—the so-called *spiral movement*. The normal rhythmic contractions of the muscle are replaced by fibrillary twitches. The results of the only treatment a fraction of the stomach with which it is surrounded and there are accompanied with ever varying force and speed. Hence the heart rate and the pulse are both really irregular, and there is marked

independent, the diastolic period is, as a rule, more prolonged. In many will accompany the irregularity, instead of following it, as in the case of other systems. Purplish heart block, with a rapid heart rate, is within the relations but an obscure, although well above characteristic difference.

Intermittent failure is rarer, but very much more common when it is syncopiform. In failure from fibrillation so that the circulation of the ventricle ceases—generally about 200 to the minute, and is regular. When it first occurs, the ventricle attempts to keep pace with it, but then ceases, impossible. The ventricular rate then drops to half, or even a quarter, a partial heart block becoming established.

The power of failure may be suspected in any case where there is a regular pulse in the neighborhood of 140, modified by conditions of rest or activity. It may be paroxysmal, being in fact one variety of paroxysmal tachycardia.

These arrhythmias occur most often in three conditions: advanced arterial sclerosis, a hypotension, and an acute degeneration of the heart, especially when there is hypertension or coronary disease. Paroxysmal attacks may also occur for which very often no cause can be found. In both fibrillation and failure, the condition of the auricles is of secondary importance—in the rate of the ventricle which must be controlled, for it is on the speed of the ventricular contraction, that the coronary circulation, and therefore the fate of the whole heart depends.

The most important remedy in both cases is digitalis which must be administered in an effective form, and in suitable dosage. It will put a brake on the ventricle, and demand the rule of the onset of ventricular fibrillation, and the patient must be put well under its influence as soon as possible. There are several reliable preparations of this drug, the most suitable dosage to crushes digitalization appears to be about two minims of the tincture per 100 lb. of body weight. Thus, for a patient of average weight something like the equivalent of 3 drachms of the tincture will be required, and this seems to be best administered over a period of three days, at the rate of 1 drachm a day, or 15 minims three times in the twenty-four hours.

Meanwhile, one must be guided by the heart rule, and the presence or absence of some signs. Solid preparations, such as digitalis and digoxin have been found most satisfactory in many cases. The latter, which may be given subcutaneous, has required a high reputation of late [E]. In fibrillation, the digitalis will, of course have no effect on the auricular condition, but, in many cases, the improved general condition of the myocardium will result in the assumption of a more normal auricular rhythm.

In failure the effect of digitalis will generally be to convert the mode too to one of fibrillation. This is an advantage to the patient, for the ventricular rate can be more easily controlled, and the sudden dropping or falling which may occur in failure is avoided.

Further, having transmitted the rate into fibrillation it is impossible to get the normal rhythm when the patient awakes again properly.

Intermittent prolonged runs of fibrillation, normal normal beats flowing may be expected by operation. A patient is first in normal state at 10 p.m. then hourly and normal rhythm is observed as up to a normal state at 11 p.m. Then at, however, cannot be limited to the presence of heart failure, but at long-standing cases, there is danger of discharging them from the wards and producing confusion. In the patient, and type of fibrillation question is used to be especially valuable.

The subjects of ventricular fibrillation are as a rule already the victims of some considerable disability. Their attention must mainly also be greatly restricted, and if the ventricular rate can be kept within reasonable limits the persistence of arrhythmia irregularity is of considerable importance.

Myocardium doses of digitalis may be continued in many cases over periods of years without some effects, although of course careful and constant watch for them must be kept.

Two other electrical rhythms may be mentioned. "gallop rhythm" and "pulsus alternans" the mechanism of production is still a matter of dispute, but they are both indicative of a failing heart muscle, and signs of grave prognosis require.

Gallop rhythm—as the name implies, reproduces after a fashion the sound of galloping horses—resulting in a sound something like "kick-a-dap,—kick-a-dap,—kick-a-dap" is understood to be "kick-a-dap,—kick-a-dap,—kick-a-dap,—kick-a-dap" of nocturnal days. It seems to depend on a dilatation of the ventricle, and indicates approaching heart failure and the urgent need for treatment before it is too late.

In pulse diagnosis every second beat is weaker than the preceding, sometimes the difference is slight and a pulse tracing may be necessary to demonstrate it. But when present it shows that the myocardium is fast losing its power of sustained contractility. In the desperate cry of a failing heart to which it is well to listen—and learn, it will not be repeated for long.

The clinical picture of established heart failure is unhappy, well known, and its number features scarcely need reproduction here—she gasps, she utters the desperate choking light for breath. But we may perhaps recall Alcott's memorable expression of a severe attack:—"The patient would and threatened before he could cry out, spring up, lie on his back with death. The desperate would make the full energy almost unable to do. Now this way, now that, he springs up as he is right from the edge of it, he seeks to make exhaustion, but only to rise again pouring with sweat streaming from his forehead to make the battle. Modern science has unfortunately been able to supply her new weapons to aid the stricken forces in this desperate encounter." First sleep that and depletion have been the strongest allies from some long past.

Rest and sleep are of course of urgent importance and the best way

of securing them is by full doses of morphin. Depletion by any means is demanded, but purgation, profuse diuresis, freely bleeding—these will afford the greatest relief possible. In the matter of diuresis much progress has been made of late. Polyuria, a morphin-associated symptom, expected automatically as of great value in many cases. Dehydrated thickenings and some other Kautschu derivatives frequently given good results.

The diet must be restricted, and be easily digestible. Phosphorus may be given freely. The amount of fluid should be moderate, and the food should be given without salt as the presence of much sodium, this condition may also necessitate the withdrawal of fluid by perspiration or multiple punctures, according to an idea.

As regards specific drug treatment, digitalis appears to give the best results. It acts as always by putting a brake on the heart and through its action on taking heart is easily to increase, as its fibrillation or flutter it may be of considerable help.

It will also assist diuresis. But it must be remembered again that it is of little use unless it is pushed to the limits of its tolerance by the patient.

Oxygen may be of assistance when there is much congestion of the lungs or emphysema. And it appears from some investigations of Francis that arterial oxygen deficiency is not a feature of ordinary uncomplicated cases [2].

There does not appear to be any evidence that the above morphin compounds make an accurate and accurate, have any specific cardiac action. Whatever good they may do is probably due to stimulation of the respiratory center, and it is questionable if they are any more effective than oxygen in this respect.

Adrenalin is a powerful cardiac stimulant acting directly on the sympathetic nerve endings in the muscle. But it is dangerous in ordinary valvular failure, as the resulting rise in blood-pressure may add the last straw to the burden of the laboring heart.

It has considerable value in certain other conditions, however, in the peripheral type of failure with its central circulatory collapse which is the decided complication of severe general debilities such as diphtheria and pneumonia, it may be the stimulation of the sympathetic, with the patient over an otherwise fatal fall of blood-pressure. And in the sudden stoppage of the heart which occurs sometimes during anesthesia an injection of adrenalin directly into the cardiac muscle has more than once averted what seemed an inevitable disaster.

REFERENCES

- [1] HUGHES FRANK. *Brit. Jour. Med.* 1924, 1925, 1926, 1927.
- [2] LAMBERT. *Brit. Jour. Med.* 1926, 1: 25.
- [3] BELLINGER. *J. Int. Chir.* 1926, 1: 10.
- [4] LAMBERT. *Brit. Jour. Med.* 1926, 1: 25.
- [5] HARRIS. *Brit. Jour. Med.* 1926, 1: 25.
- [6] HARRIS. *Brit. Jour. Med.* 1926, 1: 25.

SYMPTOMATOLOGY AND PATHOPHYSIOLOGY
OF DENT'S DISEASE OF THE NERVOUS SYSTEM

Symptoms of the nervous system is one of the last and most striking phases of a disease which was certainly in progress and in somewhat advanced in its early stages. The signs of this neuropathology in its various forms is still the leading disease-suspect of every neurologist. Our knowledge of the factors concerned in the development of the symptoms was in the nervous system is not far from complete and in the past a tendency only to examine the problems in the confined light of the manifest signs of the established disease is undoubtedly the chief cause of our ignorance.

In the past decade the experimental work of the *European Neurological Clinic at Rome* has been coordinated and the results which are published under the auspices of the United States Public Health Service are an impressive and stimulating page of work.

From the neuropathological standpoint the case of an individual who shows no clinical evidence of syphilis, but whose spinal fluid is not yet capable of analysis of gross evidence of the disease is common. Nevertheless, these persons mark the beginning of the pathological changes occurring in such an individual with the earliest factors of the disease and with the results of treatment as a measure not before this point.

The high incidence of changes in the spinal fluid in patients with untreated syphilis [4] [8] suggests that the nervous system is not only infected in a high proportion of cases, sometimes with but insignificantly without the production of symptoms but that more than needed within the first year of the disease. Asymptomatic neuropathology in syphilis is which involves of the nervous system is shown only by changes in the spinal fluid. These changes may precede any clinical evidence of central nervous syphilis by many years but it cannot be denied that they are the forerunners of subsequent complete neuropathology. It follows that if the spinal fluid is examined and it is found abnormal in the early months of the disease treatment may be so applied as to meet the changes which are threatening to develop and completely in a smaller number of patients. As L. Moore says in an excellent monograph in "The Modern Treatment of Syphilis" [9]: "The physician who wants to perform a routine spinal puncture on every patient diagnosed as syphilis is ruled negligent."

The changes in the spinal fluid which usually a diagnosis of asymptomatic neuropathology may be slight or marked, or intermediate between these two extremes. They are then systematically classified into three main groups whose characteristics are set out in Table I (from the *Compendium Clinical Pathology in the Treatment of Syphilis* 1934 F. C. S. Public Health Service).

¹ This paper is from the "Work Reported at the 10th Annual Meeting of the Society of the Neurologists."

TABLE 1.—Effect of Treatment of Apple Trees on the Incidence of *Scab* in the Fruit.

Treatment	No. of trees	No. of fruit	No. of fruit with scab	Percentage of fruit with scab
Control	10	100	10	10.0
100% Bordeaux	10	100	5	5.0
50% Bordeaux	10	100	10	10.0
25% Bordeaux	10	100	15	15.0
12.5% Bordeaux	10	100	20	20.0
6.25% Bordeaux	10	100	25	25.0
3.125% Bordeaux	10	100	30	30.0
1.5625% Bordeaux	10	100	35	35.0
0.78125% Bordeaux	10	100	40	40.0
0.390625% Bordeaux	10	100	45	45.0
0.1953125% Bordeaux	10	100	50	50.0
0.09765625% Bordeaux	10	100	55	55.0
0.048828125% Bordeaux	10	100	60	60.0
0.0244140625% Bordeaux	10	100	65	65.0
0.01220703125% Bordeaux	10	100	70	70.0
0.006103515625% Bordeaux	10	100	75	75.0
0.0030517578125% Bordeaux	10	100	80	80.0
0.00152587890625% Bordeaux	10	100	85	85.0
0.000762939453125% Bordeaux	10	100	90	90.0
0.0003814697265625% Bordeaux	10	100	95	95.0
0.00019073486328125% Bordeaux	10	100	100	100.0

Incidence of *Scab* early apple crops and under the supervision of the United States Bureau of Entomology and Plant Quarantine. So far as comparisons are concerned, the 100 per cent. was made on the basis of Group III (50 per cent. Group I) 100 per cent. Group II, 50 per cent. and Group III 100 per cent.

Further examination was conducted that showed that the incidence of *Scab* was not as high as 100 per cent. of early secondary and on 100 per cent. of late secondary apples. Table II shows the relative frequency of asymptomatic neoplasms in the four groups according to the stage of the disease.

TABLE II.—The Incidence of Early and Late, Asymptomatic and Secondary *Scab* in the Fruit.

Group	No. of trees	No. of fruit	No. of fruit with early asymptomatic <i>Scab</i>	No. of fruit with late asymptomatic <i>Scab</i>	No. of fruit with secondary <i>Scab</i>	Total
Group I	10	100	0	0	100	100
Group II	10	100	0	0	100	100
Group III	10	100	0	0	100	100
Group IV	10	100	0	0	100	100

These patients were observed clinically and serologically for years. After being subjected to thorough treatment which varied according to the degree of their disturbance, it was found that a satisfactory blood count was obtained in rather more than half those following Group I and Group II. In Group III and Group IV had no microscopic picture. Table III from "The Modern Treatment of Apples" (J. L. Moore) illustrates these points. Satisfactory outcome is taken to mean persistent clinical normality and serological negativity.

in cases in this group. The cells and proteins are always affected quickly by any treatment, and do not appear to be a true gauge of general improvement. The fluid is again examined at quarterly intervals, and, if improvement is proceeding, no alteration is made in the general scheme. If not, a course, or courses of bismuths are given, and then drug combined with an arsenophenone and a heavy metal, usually produces results. In very resistant cases fluids must be given. The average duration of treatment is two to five and a-half years.

In the Group III type of patients, routine treatment by arsenophenone and heavy metals fails to bring about reversal of the fluid changes in any circumstances. Thus, and the fact that the prognosis in no way runs extremely bad, makes unclear the only logical treatment [7]. If syphilitic infection is evident, a preliminary, six months course is given, with thorough arsenophenone and heavy metal treatment, to avoid the great likelihood of all infectious meningeal relapses after arsenic. Otherwise, fluids should be given as soon as possible and should be followed by full systematic treatment with bismuths, arsenophenone and heavy metals. Treatment must be continued for at least three years, but as an average, various can say, guaranteed by given that the ultimate outcome will be good. Table IV shows the effect of treatment in a series of cases of sy. syphilitica in meninges revealed by fluids in the cerebrospinal

TABLE IV.—Cases with fluid evidence as to Treatment of Sy. Syph. and L.C.S. (continued from previous page)

Type	Protein primary or		
	cells in fluid	protein in a primary	protein in a post and
	and cerebrospinal	and cerebrospinal	cerebrospinal fluid
1	100	25-100	10-100
2	10-100	50-75	50-75
3	50-100	50-75	10-25

Its failure of individual patients to arsenophenone bismuths, fluids must take depend on many factors, the majority of which are at present difficult. Common failure of a therapeutic nature emerges however from this, to occur weak and may be broadly summarized thus: In early syphilis irregular treatment, within the chance of any syphilitic neurosyphilis, [8] and the failure of Group III fluids is stressed, but by showing treatment to types. In late syphilis on the other hand, the nature of the treatment actually influences the occurrence of spinal fluid changes. The difference is presumably accounted for by the patient's immunity, which is at first labile and easily defeated by the drugs used in treatment [8], but which is later well established and not so easily upset.

The foregoing experience of a typical spinal fluid in early syphilis is given [1] [8] and parallels the following statements: A spinal fluid

found to be associated with the moderate adequate reaction (40) is found to be normal with very few exceptions, at any time, we generalize that a typical subsequent reaction in does not permit a second period of generalization of the virus (11). This is usually indicated by, clinical or serological relapse, and if necessary further puncture should be done upon just as if the patient had become recalcitrant—that is, after no mercuric treatment. If after the original negative findings on the spinal fluid, there is no evidence of clinical relapse and if the blood Wassermann reaction remains persistently negative, further puncture need not be repeated until the end of the post-treatment year of protection. If the test is again negative at this examination, it need never be repeated on the average patient. (12)

In patients who have late syphilis (that is infection of more than four years standing) a first treatment course, and probably no re-examination of the virus can serve on that account. If such a patient has a normal fluid and shows no evidence of neurosyphilis, it follows that further puncture need never be repeated.

In a large American series of patients with early syphilis and negative fluids, subsequent neurosyphilis occurred in only 1 per cent, and in all of these the disease was clinically of the mild untreated nerve root type, which responds readily to treatment. In a larger similar series with late syphilis, neurosyphilis developed later in only 0.5 per cent. Hence under the definite statement that he has never been taken as G.P.I. develop as a patient who had been known previously to have had a negative spinal fluid.

The lessons to be drawn from this work seem to me to be as follows:—

(1) That every case of syphilis which is treated without spinal fluid investigation is treated inadequately and inadequately.

(2) That further puncture should be done in all syphilis, in every case during treatment preferably at the end of the first six months and again at the end of the first year of post-treatment protection (13).

(3) That abnormal findings on the fluid at any time demand an all stress syphilis re-examination of the fluid, and if many times repeated whenever of treatment which will vary with the changes found.

(4) That invasion of the nervous system, which probably occurs in all cases of late untreated syphilis, also happens in a great number of early treated cases (within the first year of treatment).

(5) That regular treatment in a patient leads to the production of asymptomatic neurosyphilis in some only cases.

(6) That a persistently negative spinal fluid on an adequately treated individual justifies the probability that he will never suffer from early syphilis and the certainty that he will never fall ill with either late or G.P.I.

(7) That cases of asymptomatic neurosyphilis which fall into the category of fluid abnormality have a clinically indistinguishable picture even with

but, and though some would like to think of food as still being safe to ingest, the stomach protects. Furthermore, the ingestion of proper oral and dental hygiene may be, perhaps, the best for keeping oral hygiene distinct from food. The presence of good oral hygiene factor is keeping the patient in attention with the mouth and often serious to others in the body generally may have its originating factor in the mouth. Colon diseases or disorders may well be in this character. The teeth may present the original form of infection itself or they may be merely an adjunctive and added source of poisoning. It is not intended to assert that there can be no eradication of many colon infections or disturbances so long as the patient is carrying a focus in his mouth. The germs most commonly found as focus, contributing to secondary infection is the streptococcus. Its type may vary, but still remains an infective organism, and it is found almost constantly in crowded or dead teeth or in periodontal. A fact worth mentioning is that if large blings are removed after they have been in position for some time, and a culture is made from a swabbing taken from the cavity, and fresh streptococcus will grow. This would seem to indicate that it is impossible to carry out large blings completely or should the situation be too extensive, it may be that as largely filled teeth a degenerative process sets in and infection from without or from within takes place. When the tooth infection plays a secondary part in colon disorders it can be well accepted that colon infection and some absorption or the results of general some absorption, may seriously affect the teeth. As an example it is now proved that a chronic toxic process does often bring about extensive absorption of both teeth and tissue. In the case of the teeth, such a process almost always leads to decay, and subsequent infection is met with its varying effects and results.

Whatever the body condition may be the ownership of a sound and healthy dental apparatus is essential for the work of the dental system extends to more than purely tooth conditions. Diet and mouth conditions in general come into his domain. For instance the gum pH, saliva pH and chemistry helps to indicate their importance and factors, dental body chemistry may register its effects in the mouth. I have considered various disturbances but change in acid-base equilibrium, of whatever cause, such information, to may show their results in various tissue deposits or build a new picture to infection.

The presence of a well-entrenched hydrochloric secretion in the stomach is of great moment in protection from mouth infection. But unfortunately or even a hypersecretion of acid or an over defense even if we be the moment put on the only third main infection. It is not adequately suggested by patients that the swallowing of germs or focus is not the only cause of secondary infection, blood and lymph focus infections can also occur and further absorption of toxic chain may produce results in the body far removed from the mouth.

The suggestion that dentures of gold, for instance, may be due to contamination of tissue to avoid wear, sheltered from the teeth, is of questionable importance. It is quite likely that the same holds true of different color dentures, or at least such dentures may be added to already existing infection in the color.

Not only is it the duty of the dentist to deal with tooth infection, but he must, under license and the medical attendant, that the patient's teeth are continuously correct, to perform the important function of mastication. Adequate mastication of food material is essential but it may well be that the mouth problem generally is such as to preclude it being done. This statement holds true for the patient's own teeth as well as in cases for whom artificial dentures have been suggested. It is redundant for me to stress the importance of well fitting and comfortable dentures. Dentures may be beautifully made, but if they do not fit and are moved in the gum or control of the muscle then only progress is lost.

It should not be lost sight of that the denture may be the instrumental cause of failure to masticate properly and in such condition the dental surgeon must advise. He is not called on to observe or direct outside the mouth, nor what the treatment of color may be. That is not his office, but he must fully report to the physician or surgeon exactly what that particular mouth condition may be, and if necessary what treatment for it is required, exactly what the nature should be and how he proposes it should be carried out, bearing in mind the general condition of the patient. As regards the latter the physician or surgeon will advise, for that is the essential spirit of collaboration.

To give an opinion on a patient's mouth a thorough general inspection is necessary first. General tooth conditions are then reviewed in greater detail. Tissue depends gum condition, and infection or inflammation, decayed or third teeth, crowned teeth—the detection of dentistry—usually visual points, abnormal presence or absence of pus, all must be reported on, nothing be omitted. Dent means from the gingival margin and alveolar bone. It is a good plan to pass the tooth with a blunt instrument while supporting the tooth from behind with the finger. After pressure it will be evident that the leading tooth gives a different note from the stability and is often the source of discomfort, the only infection before these changes show on the radiograph. As a rule the crown of tooth as affected both vice versa, and are usually, but have been seen, but the trouble lies between the coronal and the periodontal ligament.

Radiographic examination should be done. It may in some instances be only a preliminary to the dentist himself, but even so such a safeguard is in no case a preliminary to the patient.

In some dentures it is that on all conditions good radiographs are essential, so that it behooves the dentist to ensure that his radiographic technique is beyond criticism, not only in the taking of the pictures, but in his derivation work. Daily or shortly taken films must be developed

It is true to say that the reading of radiographs is a most important part of, and we can admit that even the most carefully finished films may not show the exact condition of the teeth, but they will almost always demonstrate a broken tooth and the broken tooth is an apparently irremediable fault.

I have touched on the dentist's position in color chemistry in a general way, but on the first place he is asked to see the case (or at least it should be so) as a continuous sequence. It is essential therefore that his report be full and based chiefly on actual results and radiographs; the latter must be accompanied by clearly drawn up reports. Then lastly his suggestions have to deal effectively with the individual case should be attended. Then, and only then, is he in the position of dealing with the medical attendant who has been for the safety and comfort of his patient the suggestions may be carried out. If the real team spirit exists in the medical work, then medical attention, dentist, and especially the patient, all benefit.

To conclude my generalities: it is beyond question that it is no part of a dentist that the dentist's best work is done and it is unnecessary to know that in that time the dental corpse plays no more part and more and more is he becoming a colleague to his medical brother and less less the appearance of a workman.

A NOTE ON VACCINES AND THE LONDON COLD

By DAVIDSON LLOYD FRANK, F. MARSH BONE, D.S.

Occasional infections of the upper respiratory tract, though often mild, are of sufficient importance in the service to warrant close attention. The following table indicates the number of workmen who had due to it a leave in the year 1941-1942:—

Year	Total Upper Respiratory Infection (all types)	No. cases	Days lost
1940	11,000	1,000	10,000
1941	10,000	1,000	10,000
1942	10,000	1,000	10,000

As an early and satisfactory condition of the various organs of the body, infection of the upper respiratory tract may be of any degree of severity, and how rare such conditions are infectious, the cold virus is an important factor in the public health point of view in the home sphere. The patient suffering from bronchial attacks or influenza may be considerably worse off, as he is he himself is concerned that one who is merely suffering from a "cold" but the public conditions is actually responsible for a greater number of days sickness.

In the service when more than 100,000 men are living under constant crowded conditions the provisions and adequate reduction of all cases of infection disease is of the utmost importance if the maximum efficiency of the service is to be maintained. The more serious the infection the more

disappearance of the bacteria compared to the first and last respiratory examinations from the commencement of the study. Similarly, the number of bacteria in the sputum may not appear to decrease as infection, caused by virus, will be affected sufficiently to account for them in their own being placed in the sink test. A comparison of these secondary cases would not be hampered if there was a 100% response but being related whether they were or not, it is not.

Attention on the large number is of course, imperative, and would lead to some consideration of the possibility of a lower than the present number. It is unlikely that these above risks can be lowered by any alteration in the general diet and substance of such cases as report risk, and some other method must be sought to bring any improvement in the situation can be expected.

Prevention has always been considered better than cure and it will only be through prophylactic measures that an appreciable decrease in the number of cases of the upper respiratory tract will be obtained. No better example of the value of prophylactic methods taken in the fighting against the virus of typhoid and paratyphoid vaccines against the entire group of diseases.

Recent work on the bacterial flora of the upper respiratory passages has resulted in the production of a number of such natural vaccines which have proved of definite value in preventing the bacterial conditions for which they have been produced. From reputable firms various anti-enteric and enteroflorine vaccines may now be obtained and a natural and effective vaccine is obtainable from the H. N. College, Greenwich, for use in the home.

In order to derive the most beneficial results from the use of an anti-enteric vaccine, many considerations must be taken into account. These include dosage, the time of year at which the vaccine is most potent and the health of the patient. Dosage will naturally depend upon the strength and the attitude of the vaccine and the susceptibility of the patient, while the seasonal incidence of the disease will determine the time of year at which the vaccination should be made. The general health of the patient, too, must be considered and taken into due care is probably one of the main reasons why in many circumstances results have been obtained and why a certain proportion of patients report that the vaccination has actually made them worse.

The patient should be free from any bacterial infection of the upper respiratory tract at the time of the vaccination or it may have the effect of increasing his symptoms and though the ultimate degree of immunity may prove to be value lacking, the patient's estimation of the factor will certainly not have increased. In some people the vaccination tends to produce a negative phase during which they are more susceptible to disease and it is consequently of some importance to perform the vaccination at a time when there is the best chance of the patient becoming infected by

and paid no more than a good dinner. In that group he remained until a paid dinner (which was good) but he could neither do more, needed rest, or being a doctor and his baggage were put to account with the present-day T. & A. in addition.

APPENDICITIS IN THE AIR

BY DONALD LESTERSON, COMMANDER U. S. ARMY, R. N.

A man reported to the sick bay in January 1908 suffering from pain in his stomach. He had similar attacks at varying intervals during the past two years before he joined this ship. On one occasion he was diagnosed appendicitis, discharged to hospital, but not operated on. The symptoms of his present complaint indicated all the signs of a classical form of the malady.

He is a French boy at anchor off Apiahead, having had no considerable work of pain and largely on the loss of men of one flying movement his telegraphist and the aircraft. The weather conditions were bad at noon on Friday, a wind-blown wind from the north-west, prevented us from going up his boat. The rough sea stopped most work of any kind. It was a dull grey day of misty sunsets and mellow clouds. We were depressed at the thought of losing our west-end shore especially as we were to sail on Monday for the spring cruise.

On Friday afternoon the temperature and pulse rate of the patient increased; his symptoms were more acute. Something had to be done for immediate operation was necessary.

I was reluctant of asking for an aircraft to shorten the time between ship and hospital for some was short and the ship at anchor. Flying in nearly down wind, under way, the planes were blown over twenty knots of wind on deck. But here in the wind-swept exchange the girls provided three times in full measure. Everyone is worried with the patient's good-will. A fog kept the ship's lower two wind and so avoided the risk of the aircraft being blown against the palisades during its run up the deck. It must have been the second time in the history of the fleet for fear that an aircraft with a case for hospital was ever blown from a "Carrier" at anchor.

The patient, wrapped in blankets supported by pillows, was made as comfortable as possible and placed in a bed-hobnobbed leather stretcher on the floor of the observer's cockpit of a reconnaissance machine. There was ample room as the winter sets and other gear had been removed. We remembered to take the hospital papers, the pilot's suitcase, and my hastily collected plane clothes.

We were wheeled on to the left, and were soon on the flight deck. Just before we took off I was made to wear an inflated vest and, a flying helmet with goggles, and parachute harness over my smoking jacket. The pilot sat in the cockpit, and when no word was forthcoming to me by giving a full turn the engine and a full to return the straps. I felt that as a case, as

I suggested that my assistant should go down to see if the engine would start, and he, going out the hatch, returned after a few minutes.

To cheer me up the Commander told me, almost as if he were to him his first flight, a surprise which landed in a rough sea, dodging it, now, gained nearly from its heels, and on landing suddenly precipitated the crew into the air. This adventure did not increase my eagerness to take the air, but I was impatient to leave and discuss my change.

Climbing into the aircraft I sat on my heels across the tubular legs (the seats could not be lowered) and gripped a piece of projecting aluminum as each side to balance myself. The pilot moved his hand to signify every thing was O.K., the flight deck officer dipped his green flag, the engine roared, we gathered speed along the deck. I held myself up and, over the palmides which lay as if they were one thick band of steel wire, watched the line of interrupted struts. Parts of the deck, leading partly of each side were blipped. There was a gentle lift as we cleared over the raised outline of the deck, between the port and starboard bridges. Suddenly we seemed to be going down again as we a gentle sloping hill. Then we were gone into the air after all.

I didn't dare look out at in the direction of my patient whom ever. I felt, with something my face for comfort and assurance that all was well. Then we began to climb steadily. I peered over the side back towards the ship. In a few seconds she looked very small. Here on earth the pilot, ever kind as usually. I was for a time more conscious for that sudden looking, impressed by some people when they look over a prospect. I didn't look out again but several depressions which were almost drowned by the mass of the engine to the patient who smiled easily.

At times the aircraft wobbled from side to side or swung gently, and gave that feeling which is experienced as an ascending lift when a ship's suddenly, as up a wave that when your companion stands up to leave on the rope and his van as enters that as the air. You had permission to stop here, and prop clearly for the allotted time in shorter. Sometimes the sensation was like that of a moment riding a horse of rapid events.

Gradually I became more courageous and tried to stand up, but the force of the wind was too great for comfort. In the shelter of the wings there was only a slight breeze, such as is experienced through the web across of an open tower not with the hood up. Occasional particles of engine oil fell about. Distance had taken modification to a rough sea, and our accompanying destroyer cut through the waves leaving a broad white band with. Ships moved about. Clearly to risk in our adventure if we should force land on the water.

We passed over the Bitter second, alongside the dockyard wall. We looked like a small crane. We climbed over the windmills turning slowly, till I felt the port wing tip might touch a chimney pole, then the aircraft level again glided easily over the hangars to the road, descended

close to the ground so it *didn't* splash water into the landing water. I dug wheel tracks back 150 inches (under a green cloth). As we dislodged spent guns and water came into greater detail, there was scarcely a bump as we touched the ground, and in a few yards the pilot's skilled landing brought the aircraft to rest near a hangar. A perfect landing.

A waiting ambulance with chains would tie it to its wheels to travel over the most solid ground, none as near to the aircraft, rolling boats. I tied the patient in his stretcher and placed him in the ambulance. Some time this trip by road was more bumpy and shaky. The patient began to vomit. I was reluctant to arrive at the hospital and looking out was a graveyard, my next meeting place with another. I only needed a solitary cupper to make an ill-managed trip. But the patient was operated on successfully at 5:30 that evening, a gastroenteric appendix was removed and all was well.

THE MEDICAL ORGANIZATION OF A DESTROYER FLEET

IN A DESTROYER MEDICAL OFFICE

When larger destroyers the number of the personnel of a fleet's destroyers 1918 was the size of whom is no more responsible for the medical medical officer usually a surgeon lieutenant of about five years' seniority which seems to be the most suitable time for the appointment.

His immediate duties will prove of value in a subsequent appointment, a solving his own problems and understanding those of others. For the present, within naval service, the appointment would appear to be inevitable as part of his general service training. Probably he will not have been in medical charge before. How is he then to achieve and maintain mastery of the tasks of the fleet's which will give satisfaction to his captain, himself, and to everyone concerned?

He will carry into his duties of the medical facilities available on board. Each of the main ships has a sick bay or the forward superstructure and one ship specially built, carries a landing net, berth attachment, a medical chest and with either a hot medical department, equipped, medical equipment, cabinet for drainage, lavatory with cold water hot and cold tanks. The attending patients are sent to this ship from the fleet.

He will next grasp the principle that although the fleet's may be considered as a whole yet it also consists of many parts and therefore must work as a whole. This team will consist of the medical officer, landing net, berth attachment and the crewing from each ship who has charge of the destroyer's medical chest, and is trained as first aid.

It is necessary to know the personnel individually and to instruct them in a destroyer course in first aid knowledge of the medical stores and equipment carried and the simple rules of nursing.

¹ Instead of measuring the concentration of water in the air, the humidity of the air can be thought of as the ratio of the actual to the saturation vapor pressure of the water. The dew-point is the temperature at which the air would become saturated with water vapor if it were cooled at constant pressure. The wet-bulb temperature is the temperature of the air after it has been cooled to saturation by evaporation of water.

The next principle requires the confidence of the personnel. This can be achieved by careful selection and timing of the attending lecturer and ensuring which is fairly frequent in the first year of a course, and, subsequently, there is less chance to be done than one could imagine.

It is a good place when making a visit to carry a bag containing: hand sprays, thermometer, stopwatch, Digi-trace cards (bring at least three), signal pad and pencil and paper, M.285, 441, and envelopes, and the watch/stopwatch of the user concerned.

Experiments have shown that, when a signal is received, repeating instructions for treatment when it can be as valuable to not be transferred at the weather is unstable, and to reason as the day transferred to another to choose the program of the network.

To have a real case with different pair of sample size for each group, some calculations may easily be performed:

The medical ethics may be compared with the slope component by means of the quarterly responses, which may be averaged through the Chinese Old to ascertain of the slope in the final work to achieve.

The last one has to inspect the man's own desk, which is covered off with mats in fairly regular on the carpeted which should be in good working order in the bathroom there at a suitable height from the floor. Then follows the physical examination consisting of a scrutiny of the person then for defects of teeth, heart, lungs and skin. The last of these cases is sent to the dental officer.

The inspector takes about one and a half hours. Time is used to check the shop by monitoring the engine speedometer and also by observing the shop converted of requirements previously, viz., a working head lamp and additional lighting fixture for vehicle in motion. A means or arrangement otherwise the area may not be as arranged to measure any compliance. An inspection is taking to the observed takes which are detected at number a making notified that he referred from road marks which at Hospital was observed to be a necessary called construction.

Another means of encouraging men to report their symptoms is the health history which will ask men about any existing signs of disease.

Their business was best delivered to the Sheriff as a horse man's share of advantage or if least transport will offer adequately such shipment be required to separately on the same day. The most suitable time for the horses in June 1914 to 1920. The feature is best decided to the prevention of adverse frequently met with amongst rural personnel a "Scale movement of demand". List of items give combinations, notes

head lice, head, shoulder, chest, intestinal, venereal, skin, eye, type of appendicitis, dysentery, gonorrhea, venereal diseases, post and pre-herpetic eruptions, diphtheria, and typh.

His interest in the value of inoculation and vaccination in prevention of disease, importance of ventilation, chlorination of water, diseases caused by heat and mosquitoes.

He utilizes lanterns and slides, with notes, are available and may be obtained from the Superintendent, U. S. Navy Dept. 602.

Medical board.—At Meigs when the Director of the ship arrives during the medical officer goes to deckhead at a convenient moment to remove them meeting the attending list from ships in dockyard as usual, then on medical, and there it is necessary to arrange accommodation in the other ship of the flotilla not in dockyard, taking sufficient gear for twenty four hours, arriving at about noon and staying until about 8 north tomorrow. The ship's ship looks out for the division not in dockyard.

Leave lists.—It is a good plan to recommend some of the sailors when there is a medical board and to determine it when the results are made, as the results are.

Food.—According to the station order book, certain foods should not be permitted on board. It is advisable to have a signal made to the flotilla, through the Captain, calling attention to the foodstuffs which are prohibited.

Medicine.—Where medicine is prevalent, leave should appear at least, and leaving parties should be provided with a nurse.

Prevention of venereal diseases is of importance.

General Inspection.—At the second inspection of ships the following items should be reported into and if necessary remedied on the report:—

Medical organization for war.

State and equipment of the following systems:

Efficiency of heat and power, distribution of heat and light.

Ventilation system, distribution of ventilation.

Location of stores, food and other.

Health of ship's company.

Maintenance ventilation, use of tanks and fuel oil and exhaust vents.

Medical records entered, method of expenditure and rendering.

Number of men trained in first aid.

Working and sleeping arrangements, conditions of heads, bathrooms and ablution rooms.

Anti gas decontamination routine.

Notice boards in common pantry and for ship's company.

Regulations hygiene routine.

The next step in the method of the health of the ship's company is by means of first aid lessons, which seem to act as a check on preventing

workmen on board possibly the fact that business are given credit for improvement in output which results in more work being taken by them personnel in their work.

As regards the lectures, these are arranged by the medical officer and recorded in the weekly programme. A course of these lectures and demonstrations with a test is sufficient.

In order to get 80 per cent. of men trained it is a good plan to get from the assistant officer the number of men no longer already trained by means of the service certificates. With these exempted, a class is made up consisting of men taking from each gun a crew, one taking from each set of torpedo tubes, one taking from each boiler room, one taking from each bridge, one taking from each supply party.

The following apparatus may be put out by the commander for the lectures by arrangement with the museum:—

A model in wax showing cast

Net Holsters (straps for demonstration of transport)

Spine, transport, triangular bandage

First Aid dressing band bandage

Bandage, hot-water bottle, hot drink (demonstration of treatment of shock)

A copy of R. E. T. "First Aid in the Royal Navy" to each party

As regards other matters:—Institutions and restaurants out of hours completed periodically as they tell due wrong to change through drinking it is better to prefer the worst in each ship concerned to avoid movements of a large number of men with transport problems. By means of the portable clockwork the most simple technique is possible: the only other apparatus being other or spent, tubes and several dozen needles with springs.

Safe of Health—On the Mediterranean station it is now the rule that each ship shall carry her own bill of health. This entails a demand for men, which it is well to get in good time to allow for distribution. When on company with the flagship the bills are obtained by the assistant medical officer. On arrival of a foreign port the bills should be sent immediately by each ship to the leader from where the documents are taken to the senior officer present as to assistant medical officer as to share by the British medical officer. King's Regulations and Admiralty Instructions, Art. 218 makes this duty the Captain's responsibility.

Depot of Cases—Unfortunately the lack of accommodation in destroyers is a constant throughout the service and therefore all cases may be sent to hospital in direction.

The depot ship will take casual cases, sickness and accidents not quite suitable for treatment on a destroyer, e.g. when the ship will be at sea for several days.

In addition to the foregoing must be the medical organization of

in Russia the night before the battle, the vessel was captured by the enemy, and the crew were taken prisoner. The vessel was then taken to the enemy's port, and the crew were taken prisoner. The vessel was then taken to the enemy's port, and the crew were taken prisoner.

FIFTY YEARS AGO

THE LONDON GAZETTE, 18th OCTOBER 1847

There is a great examination now held in London for the entry of surgeons into Her Majesty's Navy. The candidates entered in this exam and the men come from the different medical schools in Great Britain, Ireland and the colonies. These officers are all of them highly qualified and many of them have taken the university degrees.

In days gone by there was an old service job, about the young gentlemen from Cork, who looked at the gangway of the Landing and enquired whether the Royal Navy lived there. The young medical officer of the present day is not quite so green as his predecessor, still he is sometimes surprised again, as in the case of a certain gentleman who was driven round Portsmouth Harbour because the floating bridge was taken, and had to pay 17s. 6d. for the pleasure of being driven up to the water on a cold day, instead of rowing over the half-mile of water between Portsmouth Harbour Station and Hare's Ferry.

A few days after the examination at St. George's House, he would be sent on a voyage to the ship of the Medical Director-General of the Navy, where he learns for the first time a short course with the medical profession. If he has passed he is usually sent on going into the street, he is one of the naval medical officers, and he generally succeeds in obtaining a place from the successful surgeon.

About a few days later, he joins the Royal Hospital Fleet where he meets with regret that the new ally afterwards must be married, when he is prepared to give a hand and make himself useful in a few weeks. Then comes the introduction to his new duties and initiation into the routine of naval hospital work. The first putting on of his uniform is usually very satisfactory, for on looking at himself in the glass he finds that the dark blue and gold is very becoming.

He is given charge of one or two sailors, and every morning at eight o'clock he makes his rounds, visiting and prescribing for each sick man, the visiting being done on a small boat which he carries to his hand.

About the month, there are patients to be attended and some of the complaints he hears of are rather peculiar. For such is apt to see it on with the equipment.

By courtesy of the Editor of *The Spectator*.



Illustrations of the Art of Living

JANUARY, 1912.]

THE SCIENTIFIC MONTHLY, L. A. MOORE, D. S.

WHILE after the War a series of difficulties, the company is providing the discharged persons (mostly African) including the negroes of the Emergency or retired, but in constant need of employment now. Thus an appointment was placed in the May 12 (London) of the letter of the Eastern Telegraph Company was five months before the company of the person by the Admiralty.

The island has been referred to as a dead heap. This is a kind of which many who have served them with refuge. Situated in the middle of the South Atlantic, the climate is dead. The tropical heat is tempered by a steady wind which blows nearly all the year round, (rising place very occasionally in the strong, "southerly" coming from West Africa. The place consists mostly of barren fern and volcanic soil, rising in many varying shades of light and colors, in hills, bays, and mountains, (colored with white, brown, and green), so that the whole looks never again of a walk in the country but of a field upon the "clashes." The whole mountain was referred to as "clashes" and the completely poor mountain occurring in behind a mountain was designed as "clashes" again.

The general barrenness was referred to the Green Mountain, about 2,000 feet high, by an incoming brother. An almost perpetual fire burns over the mountain, and is collected on concrete (volcanic) from which the water is sent down to the Garrison on a pipe line and is practically its sole supply.

Even of many kinds grow on the mountain, with a profusion of tropical and other vegetation. There are several pine trees and groves of bamboo in the valleys and ravines. Each grove covers the mountain top and the plateau just beneath it, affording protection for a few birds and a few, and however enough for the needs of the community. Grasses grow here and there and are not enough during long walks making a pleasant addition to the wild beauty which is hard to the most barren parts of the island, along with the almost entire the destruction of being the only living plant on those parts.

There is one fresh spring on the island situated at the bottom of a valley called "Dunpore," and named after that famous author who (and Americans) as a part of it. The only other drinking water available with, on land is in a tank on the pipe line on the road between Garrison and the mountain settlement. The only place that a woman (wife) was, having a wife, the many children, dropped her bottle of beer on the "clashes" and was forced sitting through the rain on a bench of trees.

The spot occupied by the life giving tank was named "God be Thanked, (although of late years it) Godly.

The present, which left the island on November, 1912, consisted of

hard to claim it is just the lack of the phenomenon of "sunshine" in the most inclement weather and on the top of the highest hill, a combination of water just (and in the eye of every child) next to a land on a hill. No one else has the only broken ribs of the island's history. In the middle of a mile, minute, and desert place there exposed an even isolated. Who put it there and why? What is the type of sunset desert which leads a man to rest in an even isolated surrounded by broken bodies in the desert?

Some of the names are very impressive of the atmosphere. Gullies Hill, Ponderosa Cove, the Devil's Riding Island, all sound shabby at night. When returning after dark from shooting, the water was horrified by the most blood curdling shrieks ever heard outside the howling of some animal. This occurred at the foot of Gullies Hill. On investigation it proved to be the crying and of a strange animal which was not even some night later by the solitary man.

I have in my possession a volume of extracts from the official journals of Medical Officers serving on the Gold Coast between the years 1880 and 1920. These contain the record of an establishment for men and companies, and give a vivid impression of German conditions in the Tropics a century ago. In one shop during a five year communication, Medical Officers died and one after the other and in another where people were paid strictly by yellow fever, the Medical Officers drank some black rum from a trough in front of the company to give them heart and courage.

In 1922 there were in addition to the German, about fifty of the E.T.C. staff with a few wives and children, and about one hundred and fifty to Helms natives and as general servants, cooks, and laborers. The community was controlled by a Commandant, a Marine Officer who had served under him a Captain R.M. one Medical and one Assistant officer. The hangings were many and comfortable, there was a cheerful life, with a beautiful balcony overlooking the sea and as all the households were within a stone's throw of each other, there was a good deal of social life in the evenings. A short, sharp and expanded show and no meetings were held during the day but a white were put on at night to preserve the character of architecture.

The Medical Officer's hangings had a deep blue or purple hangings which it was possible to extract the entire European population. Breakfast was always eaten late and little food was used to make it from the kitchen to the table. Occasionally, the men became so late that they would sit on the table alongside the house and eggs, and eat crumbs from the cloth. On the street of their discomfort and the departure of the great, whatever they were, the were caught in traps.

But, conditions and animals were plagued on the island, and most animals brought and taken were up to history, sleep. Pairs of great were present in enormous numbers in the houses and all over the island, and it was a matter of difficulty to preserve the fresh and papers.

from their summits. The most curious and common occurrence here is the finding of a photographic camera stuck to the side of some rocky outcrop. When the north wind blows here, and it was blowing strong, it can blow and whirl such things to bits.

The main road out of town, there is, is the miserable success of a dinner given by the Governor and Bishop of St. Helena, when a wild fire ran up the longish dinner log and the food had to serve for a space. It was typical of an American custom to cheer the rest of a dinner by a performance of this kind.

The foothills and slopes of the mountains were strewed with dead crabs. These were no big as the largest sea crabs. Some were red some were brown, and others a bright yellow, and when exposed to the sun every solitary, appeared in various nothing but dead when looked upon. They were motionless, and would stand up straight when their backs were toward. While they would not stick to the ground with. The thought of lying on their back and helpless was unpleasant. There was a certain green exposed areas on slopes of the mountains, called in by perpendicular cliffs known as Carter Valley, at various other runs in a walking more at hand under. Surprisingly enough these crabs were not seen in other places close to the sea in any numbers.

The story is told of two men lost on the mountain who spent the night in a cave.

It is very easy to get lost, especially on the lower slopes. The hills were built up in strange shapes and are full of treacherous deep holes into which one may fall in the gathering dusk. There is dead silence and in the heaviest rain will not be heard a line (such as) way. There is a strong atmosphere on the island impossible to explain but well known to the seamen here. Whether it is the silence the loneliness, the quiet form and coloring, of the clouds in the evening, darkness, or a combination of them all, the fact remains that one and surely many will be scared with a sudden fright and will look for leave. A new arrival from London got lost within an hour of leaving the main steamer. He was easily situated in a grey suit a hat of the kind known as a "gentleman's" and an umbrella and thought he would take a stroll to the west of the steamer. The consequent search party was a trying affair. I was working near, here in one of the mountain cottages and had walked up the mountain from beneath a distance of about seven miles including a steep climb. In response to the frequent telephone I walked down again, and having solved the problem that was troubling me I made the coast a second time. The telephone was ringing as I entered the cottage, so that I walked down yet again with a hunched back and a determination not to come out of darkness for the rest of the night. In the early hours of the morning the search parties were called out to rescue the wanderer from London, and it was a tremendous business after a night's work and walking. He landed on from the top of a hill where he had had the sense to shelter in a hole during the hours of darkness.

Only some "improved" trails could be called a road. This was the case, for instance, of the mountain settlement and the old mountain station made "improved" outside by the railroads but on special local grade with a dirt supergrade road for the up-placer. Here there were hiking places called the "One Day" and "Two Days," in allusion to the death march of God's Chosen. One stretch of the road wound through a high, but open area, some at times planted by a legume (cassava and cotton) "Maid Avenue" according to its name. At the foot of the mountain there was the "Two Days" but not used for contemplation of the road but it appeared through the mist to be high up and very far away. There were two routes, methods of ascent, one by the "cascades" a rough path cut straight up-runs and the other by the "range" in the course of which the road took thirty-two steep ascents. These, however, when viewed in short the steep ascent climbed in diverse ways up the various passes and crevices.

The family ferry was by no means disposed at Anacostia. He lived in holes in the rocks and was difficult to shoot. Black rabbits, of which there were a few number, had excellent skins for the production of the drugs which Indians wear around their necks in the winter. It was my habit to hunt the ferry three times a week leaving the house at 5 in the morning and returning at 9 for bath and breakfast. A bag of five was considered satisfactory, and four would be decreased to the club for days afterwards.

There was a few species of wild geese subsisting the mountain parts. He was a big black fellow with a good head and torso. He lived amongst the ruins of rock and lime and holes of lime stones where even the stones around were without their substance and what he got in the way of food and water remains a mystery. He sometimes appeared at the table but was scarce except in the case of a stuffed and roasted bird which was delicious.

As a means of transport, most men trusted to their legs. A few of the L. G. staff had motor cycles, but the one road and the thirty-two steep ascents called them of utility and pleasure. The opening of a house was expensive. The house used a chimney which looked at least a century old but which drove by a couple of stout brown horses under a basket made the journey as safely if not as comfort. My wife used to ride up the mountain on an elderly donkey. This had been captured when young from the wild herds living on the slender and would grow his untamed brothers by the roadside as a head upon a young man's back in a gallop off and pass them. The wild donkey of Anacostia is a magnificent beast, standing as high as a quartered pony he has the high stepping action of a carriage horse and the sight of a head trotting so low almost as a woman's side one. He was threatened with capture for commercial purposes, and I can only hope that he has been left in peace.

The Portuguese in their early voyages used to land live-stock at various

the passage was guided by a wire string along the wall. There was a right angled bend about half way through. It had been built expressly for the passage of a pipe from the catchments above the valley.

From Bell's Cottage a fine husband path led round to Breakneck Valley, and on turning to the valley one met the filtering mist and a cold wind, above the spot assumed the name of "Windy and Wetters Cove". As different ways passed had been built round the mountain. The uppermost of these crossed Elliott's Cove, after the Governor who built it, consisted of a track at almost the whole extent and showed a variety of plant life, especially of ferns. At one point one met the full blast of the wind as this narrow way passed kept close to the hollow. Two men attempted to hold against the gust on motor cycles for a wager. They had no domestic motor appliances partially at one of two places but they were there lost. It was maintained that an attempt was once made to walk round the island on the coast but after two days when the route was found to be impossible.

There is a shepherd's cottage near Breakneck Valley in which the shepherd housed himself and beside the wall except rather isolated valley, called Windy Haven, there is another in which the shepherd now resided. I am not sure that the places of these are not passed in the mist on a dark night.

With regard to the water supply there is a seasonal run which is collected on the catchments and stored in tanks, and there is a small drinking place. The only other supply is from the condensation of the dew above mentioned. At one time the water was limited to half a bucket per head per day.

At the extreme western there is a deep pool in the middle of tall heath, sometimes, two or three groups of these water holes. The island is full of various streams and one of these known as The Devil's Rising Stream is on the base of a perfect stream. At the foot of the Western Peak a narrow spur of ferns, known as the White House as called from its mass of white bark, there is The Devil's Peak, Bell's House, Bell Island has off the western part of the coast, shaped like a mountain, Bell Rock and white with grass. A company was brought to exploit this substance, but I do not know with what degree of success. The bank work must be difficult in the extreme.

Anderson has been termed a geologist's paradise from its varied and extraordinary formation, but a description of this must be left to a more scientific pen. In referring to the land snails and other well known members of the mollusks was omitted. The land walked up and down the coast with the sandstone parallel to distance various. Frank mentions one of the moths falling away with a stone road, and the lady on all these in island and ground parent.

An occasional effort was made to locate the remains deposited on the island by Diogenes, but without success, it was never found. The bones of the resident practitioners were found. He was ignorant of both the deaths

and surgeon dentist, acting chaplain and veterinary surgeon. In the latter capacity a large incision was required from a horse. As previous to this he had no knowledge of horses, but did not feel an enlarged horse on which to operate, I believe as his others. The animal was thrown and landed up on the farmer's knee, and then he was dropped out. For drawings we made a narrow log of stacking and tied it over his shoulder. The wound healed and the horse made a good recovery, but he would never speak to me again. The operation was performed by special request and only because he appeared to be in discomfort and pain.

A grave was kept ready dug on Deadman's Beach. An individual took and wandering at night started to sleep in the same and was found the next morning by a hunter. St. Helena makes riding so generally so very unsafe. There was only one death during this period, and, as it happened the Bishop of St. Helena was on a visit to the base. The heavy beach and the other factors only by the work of the sea and the steady tramp of the prisoners on its way to the cemetery with the aged Bishop at its head require a landing mastery.

The hospital was a one-storied building of solid stone close to the beach at one end of Garrison. It was surrounded by a wide verandah supported by stone pillars, and here the European patients were usually accommodated. At a short distance were a mortuary, an isolation hospital, and a post-mortem room. The establishment was taken over from the Admiralty practically as it stood. After the prison left there was no coming or going for several months except a St. Helena colony treated by signal, and complete isolation gave the state of affairs extremely uncomfortable. An excellent nursing sister was eventually obtained after a considerable struggle.

An excellent operating table was kept as a curiosity. It was of wood and could be raised or lowered at the head and feet. It had rings attached to its legs for the purpose of tying the patient on the days before the discovery of anaesthesia. Disputing had to be done by the Medical Officer, and the contents of some of the other bottles might well have been sampled by Napoleon himself!

There was no hospital with a nursing staff worse than St. Helena. The most dangerous illness came recently from England and the Cape, and there was some talk of being able to meet it as a emergency, but the latter was more consistent with their arrival. I remember a hemorrhage, bleeding most of the night after an abortion operation, and then something that he had had a week and more and had nearly died in death. With the usual emergency he had returned from my previous masters of the day.

Dental extractions were carried out wholesale. St. Helena natives are poorly fed from infancy, and without cultivated sugar when they can get it. With the result the average individual had a typical greenish yellow and suffered frequently from signs of beriberi. Their teeth wanted no attention and the offending conditions were removed one by one like

with some green, a purplish brown. Half a pound could be secured within five minutes during the day. In fact when I have thought the surface fishes had enough I have been asked to get on with the job and to dig into some more. After the removal of the scales it was not uncommon to make a full upper and lower denture under general anesthesia. It was dangerous, no doubt, but the topic has called for comment, and we never had to search inches or hands for lost roots. The upper hardened up soon enough, and the patient could clamp his again in a minute.

The old Naval church was likely to be deserted when the garrison left, and as it was full of memorials, this was thought to be a pity. Four unknown hard-worked sailors obtained licenses as lay readers from the Bishop of St. Helena, and took the service on four occasions, and now so that the little building was kept alive. The memorial tablets included some 50 officers who had died at Ascension about ten years and more of service on the island.

Baiting was almost impossible, and could only be attempted in Caradethen Cove. The dangerous waves and the darkness of the sea made a pleasant baiting impossible. There were the small cutworms, the low tide blackfish with its human look and unparallelled voracity and the eelworm and the top-eelworm, both of which would attack on sight and would crawl over the rocks in late after waters. These eels were three or four feet long and had thick strong bodies. The eelworm was almost brown, and the top-eel was marked with a bright yellow or green, and except for the long white mark with its rows of teeth was reminiscent of the African puff adder. Both creatures inflicted a very ugly lacerated wound penetrating to the bone. Comps could be eaten with medicines which provided they were served with a certain degree.

The Ascension fish include some of the finest eating in the world. These most commonly seen at the family table were the beautiful mullet, the red snapper fish, which we called salmon, and the silver fish, a delicious fillet about the size of a smallish trout. The brown snapper was the complement of all.

The sea at Ascension is as clear as crystal and as transparent as glass, extending on a ledge by Caradethen Cove one may look into a sea cavern to the end of the bottom of it. Here can be seen the bright blue angler fish, the porcupine fish which blows itself out and produces prickles like a porcupine, and the staghorn blackfish. The latter are not black and as big as a good size flounder. Anything thrown into the water, from a piece of bread to a tin can, to the body of a departed blackfish, will certainly be the cause of a snapping fighting, working mass. These fish are not edible.

Spotted cutworms are eaten by the St. Helena cutworm. They are in great numbers all round the coast, but none were seen of any great size. One, however, measured four feet over the full spread of its branches, and

they ran into a storm and lost a few dollars by not being caught. Some apes are said to have come from the bottom of the depths of the Nile and to have captured the boats of fishermen, but I have never heard that that story has been verified.

There are wide beaches on each side of Gharra. They are very very wide onto the sea. The Long Beach on the landward slopes of which there is a respectable little gold mine with good ground has been a playground including the loss of a monument and entire family of children who were suddenly washed away. The rollers on Gharra have often been described. They will frequently come on a perfectly calm day, when even rolling waves will come up a few hundred yards out to sea without warning or apparent cause and will come thundering up the whole width of the Long Beach, which if I remember rightly is a matter of two or three hundred yards. Fishing from boats has always been discouraged for this reason. On one occasion the boat deckers could load another seven or eight passengers, which later included several new arrivals on order from Helena, but was obliged to take them all on to Tenebris. I remember the well keptness as the return of the arrivals from Tenebris the sailing ship had to turn out as the capacity of goods-carrying expanded and where there were some specimens before re-shipment to St. Helena.

On Gharra's beach there were the First, Second and Third Bunkers which were holes in the rocks on the beachside through which the incoming waves would propel columns of spray in a number of jets or jets of great water sports.

The rest of the small steamer was the means for the young men of the island to register as board or come to staff themselves with refreshment and the passengers with passengers. One woman, I remember, proposed to write a book entitled *A Great Deal about Gharra*. It was published it must be a strange production. The men would come ashore laden with a word of contempt from the harbor's edge, with small delusion from the catering department, and always with eyes for the children.

The economy of the island was a matter of some difficulty. The Navy was a big customer for groceries, etc. which was taken over by the L. F. C. Consumption of milk and sheep generally of a poor quality, were sent from the Cape. The sheep in which I made the passage from Cape Town lost all the sheep from the frequent well deck, washed ashore in the last instance. People present being in fact, the cost of living was high especially as the native servants were irregular and repeated the same notions as Europeans in respect of which I may remark that they really are more than a fraction of the cost but were very poor of doing the full amount. When the Gharra left the number of cows was reduced and there was a consequent shortage of milk. The children had lost milk on this but there was not always enough even for them.

There were some parcels sent as a return. The tank which weighed anything up to 300 lb., came in the harbor or through to by

these are "Amegs" of which it is a matter of regret to the writer that he never got a fresh egg. Suspicious in appearance, I believe they are excellent in fact. They are about the size of a young quail and have sharp and not blunt. It was considered surprising to drop one on the pavement and at a nearly unbroken hour, as an example which always is at a very, of course. The egg would dent, but never break.

Low birds must be cooked in a manger for two hours and then grilled like an ordinary steak. It is then equal in healthfulness to the best quality. These are people however who are short of anything beyond the routine run of their shop or kitchen, and it was found that a large part of the birds was always wasted. The eggs were therefore discarded.

In my family we depended largely on the unlimited supply of fresh fish in the fresh and pagoda, which were kept in spite of the rule and



Fig. 10. Terns, Amegs, 1900-01.

in the middle of the night which I could never find in the last, but 1900-01. About every 100 birds would come from the kitchen of the sea, and within 100 birds, reaching the regular rate, of 100, and, my dear, another 100. Very few of the other systems, including about a 100, so that we distributed the regular amount of the neighbouring houses.

The eggs of the warty tern, known locally as the "Widow's" were thought by me to be good when baked fresh, grained, or cooked in any other manner. They were slightly smaller than a tern's egg and there was nothing against them except that the yolk was rather highly colored. These birds arrived on the island regularly every eight months and had then 1,000 or more than thousands on a great plain known as "Widow's."

They are beautiful little birds, with black wings and grey above breast, and lay eggs out of all proportion to their size. The flocks of these colonies are easily disrupted by wild cats of which there are many on the island, and the most of one and larger birds take till of the young. A few breed on St. Helena, but I believe I am stating a fact when I say that no one has yet discovered where they go to on leaving the island after the breeding season. I was afterwards, while leaving over the end of a busy life at night. I heard the call of "whew-whew," "whew-whew" the breaking the silence in the birds came in from the sea, and the dove spent on the island were recalled with regret.

Of the land birds in St. Helena the most birds common also on St. Helena, and the tiny, crested, known in South Africa as the "crested" from its red head used to keep about the longhouses, the Cape Dove, and the flocks of "Yellow Bays" which were the only flowers produced in the longhouse garden. Of other birds there were the highly the honey, and the house bird, and of course various species of the gull.

For games and amusements on the island there were tennis, and rough golf on a hillside in which later the St. Helena colonies are simple. They are also quite good at Association football and hockey. In the evening there were the piano and the gramophone and many appropriate songs and dances were held on the veranda. The loud speaker had not yet arrived to deliver the more formal forms of music.

The wireless station on Quarry Hill above Garrison was abandoned and the main mast of which was three hundred feet high were still standing as lofty masts over the island.

It may be noted in conclusion that the original buildings of the Garrison were erected at as low a level as possible so that they were sheltered from the life giving wind. They were coarse looking, primitive structures and no knowledge of the narrative agents of tropical and subtropical disease caused the settlement to be the death trap which it seemed at one time to have become.

On revisiting the place a few years ago one of H.M. says it was found that there had been an unprecedented flood of rain, and that the whole island had become covered with a coarse green grass so that the old well known birds of the island and the goat could scarcely be recognized.

The day of the departure of the garrison was a sad day. After a hundred years of Vigil or Marine administration the island was reflected in British states under the Colonial Office. The local government was transferred to the Governor of St. Helena to whom the superintendent of the P.T.C. was responsible as magistrate. There were many unhappy farewells to the departing officers and men in the breaking up of a good life and a pleasant community.

It was something very happy indeed after this that the writer landed in his recognition to the superintendent, and returned, like the prodigal to

are differentiated from the tendons by their position among the muscles. Therefore we saw, with the scope, a small loop of tendon in the middle of the tendon. It has the virtue of not pulling through easily, and when separation of the tendon leaves no knot or scar and tendon very long and very good appearance can be obtained.

The several tendons were dealt with in a like manner being in circumstances of danger to themselves the nerves for a longer period. All tendons were treated separately except the flexor pollicis digitorum. This had been cut again, and parts of origin of the tendons had been removed as before.

Tendons were supported as much as possible with a view to swelling, a measure by supporting them too. Complete restoration has not yet, and even when they have been used for this purpose has in my opinion, the risk of rupture by stretching a foreign body into the already damaged tendon, rather than of cutting the tendon should be obtained by sutures as early as possible and possible with safety.

The hand was put up fixed over a roll of gauze and the wrist, which was also fixed up, a splint, with a view to taking the tension off the repaired structures.

Anti-tetanic serum (20 ccs) was given before leaving the hospital. Healing took place without report interesting and by the twentieth day all skin wounds had been removed.

It is well to guess how and remember when the new tendons arrived again from the deeply involved surgical details.

Both the tendons and their nerves had been exposed, so that removal of the muscles had not only been cut themselves, but had also been deprived of their nerve supplies. A list shows of what happens when a nerve is severed in its fullness.

(1) Flaccid paralysis of the muscles supplied, with loss of reflexes.

(2) Loss of specific sense and the sensation area supplied by the nerve is the patient is (a) unable to detect light touch (pressure pain) (b) unable to detect cold (heat) (c) heat and cold, (d) unable to detect separated parts of an open wound. (e) Incontinence is complete.

(3) Loss of proprioception sense over a muscle area. (4) the patient is unable to detect a pin prick. (5) the patient is unable to tell the difference between extension of hand and cold.

(6) Swelling of lymphatics.

(7) Working of muscles.

(8) An edematous swelling. (9) paralysis of movement. (10) sensory disturbance. (11) sensory area.

These changes are now listed for the reasons. Firstly, because they have a very long history of signs and symptoms of recovery. These will be mentioned later when the general methods of the hand in surgery is considered. Secondly, because in this particular case each limb, above and below, nerves and of the motor system. Thus the nerves were severed they were damaged by the most serious of the injuries sustained in the motor system was damaged by glass.

High importance is given to the nerves which are so situated in the general features of the hand as the flexor and extensor of the thumb, the flexor of the little finger, and the extensor of the middle finger. Although they occupy the immediate danger zone the loss being supplied by the radial nerve (above and below) these structures suffered seriously by losing their nerve supplies, and degenerated.

To remove the nerves. On the nineteenth day, and worked together with the nerves. The skin was white and glazed, but the last day of general recovery of the hand, pain, and a feeling of movement was noted in the region of the middle finger. (12) the hope that there was definite signs of the tendons in the region of the hand. (13) the hope that there was definite signs of the nerves in the region of the hand. (14) the hope that there was definite signs of the nerves in the region of the hand.

On the twentieth day, a plaster cast, with slight flexion of the wrist, and

finger was ready to replace the splint. On the evening with day, gentle massage on the cast was started, and the patient encouraged to use any voluntary movement he could, but no manipulation was allowed. On the seventh day after the accident, the splint was quietly removed, and both active and passive movements started.

As soon as convenient, more near the finger and thumbable state of repair without repair—the whole flexibility of the cast lay on the decision of what movement and removal of all its parts could be safely undertaken. If necessary, the chance of breaking down the cast was there. If too long, these advantages would probably have been made complete finger recovery. The last letter was written, the patient upon his finger as much as possible on the splint, with the assistance of passive movements until it was quite evident that union had been obtained.

The present condition, three and a half months after the accident is that a very useful hand has already been obtained, and expected symptoms lead to the probability of a hopeful prognosis for the regeneration of the nerves as a question.

As various suggestions of nerves was a considerable subject, one of the chief points referred to the theory that regeneration was wholly restored, and another that there was peripheral regeneration also. The natural course of nerve repair, which is now generally held, then says, that where a nerve is cut the distal portion degenerates completely and it is not until several months and even years after a change that new fibres grow from the centre from the proximal end of the severed nerve.

The question already arises: "How do the healing cells respond to the cut and manage to find their way along the old path?"

The answer has been supplied by Bateman and others, and is in—Chemical attraction. The degenerating medullary sheath breaks up and liberates chemical substances which attract the growing new substance in the same way as inflammatory tissue attracts and causes the leucocytes to leave the vessels and crowd upon the inflamed area.

Bateman proved that if two sections taken, the one containing substance of bone, and the other substance of bone, are presented to the central end of a severed nerve all the growing fibres pass into the bone substance and none into the tube containing bone. In other words the degeneration of the nerve matter in the distal end lays down a kind of bait to cause the regenerating fibres along a path of attraction (Bateman's *Nerve Physiology*).

The same author has a few remarks to make on repair after nature of divided as regards the most important of which are—

- (1) The sooner the operation is performed the better will be the results.
- (2) If the nerves have passed a certain time in any form of electrical stimulation, especially in carbon.
- (3) It is very seldom that benefit will be obtained if two years have elapsed since the injury.

(4) It implies a certain sensitive power, nature's ability of nerve life.

He also mentions a phenomenon described by Trauer who had nerve segments preserved upon himself. Any thought was the instant term allowed grew out to directly passed nerves, usually referred to the most distant part of the nerve. Loomis and B. has reproduced these phenomena upon a marked degree.

In this case, already the area of complete restoration is smaller than it was at the time of the accident, but there is a long way to go. According to Head and Sherrin who conducted experiments upon themselves by severing nerves and restoring the cut ends, the return of function is roughly according to the following table—

From the twenty-first week, sense of pruriginous sensation (pin pricks and extension of heat and cold).

difficult to explain, namely, many of epurative reactions, light rays enter the eye, are of heat and cold and a transmuting of two powers of a compound.

Probes to remove loose material, ophthalmic syringe recovery.

Therapeutic results of drainage, passive movements, mechanical current and compression to see the best as much as possible.

It would be the price of it would be instead of pain. The behavior throughout the very trying period has been exemplary. After the very natural first shock of the possibility of losing a right hand, which of course makes an every case, he adopted a philosophical attitude of interest. He carried out his instructions to the letter, without quibbles or complaints. It would be wrong to say that when told that if these patients would do likewise under similar conditions.

These last remarks are intended, not only, as a description of an interesting and successful case, but also with a view to encouraging others might help to others, who may be confronted with a similar condition.

The delicate steps in which steps in the treatment were undertaken are mentioned as very thin patients could be placed from textbooks on the subject. These views appeared to be suitable as far as the particular case was concerned and may be useful as a guide in similar circumstances.

WOUND CASES OF REYIL SURGERY AT R. N. HOSPITAL, CHATHAM

By Surgeon Commandant L. L. MANFRED, R. N. R. N. CHATHAM

There is no probability that there is a real interest in the number of wound lesions in naval hospitals the increasing use of a rifle and the tendency of extensive pyrexia in suffering from infection in time. On the one hand, it is important a case are suffering the dangers, and on the other the economic economy of the patients and facilities of hospitals and certain by accident as provided in making surgical treatment in the conditions with some satisfaction and on more careful care.

At the Royal Naval Hospital, Chatham, within the last two months eight amputations and three reamputations have been performed, three of the former by the R. N. Commandant in the Navy.

The following are brief notes of the cases and the conditions for open them.

Case 1.—While participating in a medical drill from headquarters from the Corps of Rifles the man developed symptoms of a right peroneal fracture which was found by a ray to be associated with a calcaneal fracture.

The patient was disabled, treatment of the underlying renal condition being postponed. Rapid recovery paralleled with better leave, and in view of the dangerous nature of the case the R. N. Commandant in R. N. Navy was asked to see him and decide the delicate question of further surgical interference. He appeared and removed the injury eight weeks after the original damage. The operation was a tedious very difficult job, tedious and arduous, even the work was continued and the patient had to rely from the clinic, lying within a few hours.

Primary amputation might have been more successful, as it would not have been necessary to have drainage, there would not have been the high tension pressure and the acute illness of the patient.

The injury when treated was a severe case of open and gas.

Case 2.—A young soldier aged 20, was admitted suffering from gunshot wounds which had come on suddenly without apparent cause and without other symptoms. When questioned closely he admitted to having on occasional rages during the night, but during the previous six months, but otherwise felt and looked well. He was epileptic.

After a week or two and the exhibition of convulsions and hemiparesis, the

and numerous nodules about the size of a pea were present on the surface of the lungs. The lungs were removed and weighed 100 gms. The heart weighed 100 gms. The kidneys weighed 100 gms. The liver weighed 100 gms. The spleen weighed 100 gms. The stomach weighed 100 gms. The intestines weighed 100 gms. The bladder weighed 100 gms. The uterus weighed 100 gms. The ovaries weighed 100 gms. The testes weighed 100 gms. The prostate weighed 100 gms. The seminal vesicles weighed 100 gms. The vas deferens weighed 100 gms. The epididymis weighed 100 gms. The scrotum weighed 100 gms. The penis weighed 100 gms. The clitoris weighed 100 gms. The labia majora weighed 100 gms. The labia minora weighed 100 gms. The perineum weighed 100 gms. The rectum weighed 100 gms. The sigmoid colon weighed 100 gms. The descending colon weighed 100 gms. The ascending colon weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms.

The operation was performed by a right incision and a solitary rib was removed. A small incision was made in the skin of the chest and the lung was removed. The lung was weighed 100 gms. The heart weighed 100 gms. The kidneys weighed 100 gms. The liver weighed 100 gms. The spleen weighed 100 gms. The stomach weighed 100 gms. The intestines weighed 100 gms. The bladder weighed 100 gms. The uterus weighed 100 gms. The ovaries weighed 100 gms. The testes weighed 100 gms. The prostate weighed 100 gms. The seminal vesicles weighed 100 gms. The vas deferens weighed 100 gms. The epididymis weighed 100 gms. The scrotum weighed 100 gms. The penis weighed 100 gms. The clitoris weighed 100 gms. The labia majora weighed 100 gms. The labia minora weighed 100 gms. The perineum weighed 100 gms. The rectum weighed 100 gms. The sigmoid colon weighed 100 gms. The descending colon weighed 100 gms. The ascending colon weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms.

The patient was discharged on the 10th day and was well. The lungs were removed and weighed 100 gms. The heart weighed 100 gms. The kidneys weighed 100 gms. The liver weighed 100 gms. The spleen weighed 100 gms. The stomach weighed 100 gms. The intestines weighed 100 gms. The bladder weighed 100 gms. The uterus weighed 100 gms. The ovaries weighed 100 gms. The testes weighed 100 gms. The prostate weighed 100 gms. The seminal vesicles weighed 100 gms. The vas deferens weighed 100 gms. The epididymis weighed 100 gms. The scrotum weighed 100 gms. The penis weighed 100 gms. The clitoris weighed 100 gms. The labia majora weighed 100 gms. The labia minora weighed 100 gms. The perineum weighed 100 gms. The rectum weighed 100 gms. The sigmoid colon weighed 100 gms. The descending colon weighed 100 gms. The ascending colon weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms.

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Case 3—In this case, by further removal, one large and one small stone were removed by means of the force of the left kidney, which was exposed on the right side of the body. The kidneys and suprarenal glands of weight. The removed kidney weighed 100 gms. The heart weighed 100 gms. The kidneys weighed 100 gms. The liver weighed 100 gms. The spleen weighed 100 gms. The stomach weighed 100 gms. The intestines weighed 100 gms. The bladder weighed 100 gms. The uterus weighed 100 gms. The ovaries weighed 100 gms. The testes weighed 100 gms. The prostate weighed 100 gms. The seminal vesicles weighed 100 gms. The vas deferens weighed 100 gms. The epididymis weighed 100 gms. The scrotum weighed 100 gms. The penis weighed 100 gms. The clitoris weighed 100 gms. The labia majora weighed 100 gms. The labia minora weighed 100 gms. The perineum weighed 100 gms. The rectum weighed 100 gms. The sigmoid colon weighed 100 gms. The descending colon weighed 100 gms. The ascending colon weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms.

Case 4—In this case, a single operation, stone removed most of the kidney, and suprarenal glands, showed little or no connection from this side. The other kidney was normal in position and the blood was 100 gms. per 100 c.c.

Removal of the stone was not possible without complete removal of the kidney. The patient was discharged on the 10th day and was well. The lungs were removed and weighed 100 gms. The heart weighed 100 gms. The kidneys weighed 100 gms. The liver weighed 100 gms. The spleen weighed 100 gms. The stomach weighed 100 gms. The intestines weighed 100 gms. The bladder weighed 100 gms. The uterus weighed 100 gms. The ovaries weighed 100 gms. The testes weighed 100 gms. The prostate weighed 100 gms. The seminal vesicles weighed 100 gms. The vas deferens weighed 100 gms. The epididymis weighed 100 gms. The scrotum weighed 100 gms. The penis weighed 100 gms. The clitoris weighed 100 gms. The labia majora weighed 100 gms. The labia minora weighed 100 gms. The perineum weighed 100 gms. The rectum weighed 100 gms. The sigmoid colon weighed 100 gms. The descending colon weighed 100 gms. The ascending colon weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms.

Case 5—The patient had a long history of recurrent attacks of the stone and of the left kidney. On three occasions, by operation, stone had been removed but progress had been blocked the day. Finally at St. Peter's Hospital, the left stone was removed by combined operation and discharge of stone of the kidney by spreading apparatus. No further stone formed, but stone was removed from the right kidney, and the patient suffered from attacks of stone with increasing severity and later.

Examination photographically showed without exception damage to the kidney with hydronephrosis and which showed that the stone was of the kidney. The kidney was removed and weighed 100 gms. The heart weighed 100 gms. The kidneys weighed 100 gms. The liver weighed 100 gms. The spleen weighed 100 gms. The stomach weighed 100 gms. The intestines weighed 100 gms. The bladder weighed 100 gms. The uterus weighed 100 gms. The ovaries weighed 100 gms. The testes weighed 100 gms. The prostate weighed 100 gms. The seminal vesicles weighed 100 gms. The vas deferens weighed 100 gms. The epididymis weighed 100 gms. The scrotum weighed 100 gms. The penis weighed 100 gms. The clitoris weighed 100 gms. The labia majora weighed 100 gms. The labia minora weighed 100 gms. The perineum weighed 100 gms. The rectum weighed 100 gms. The sigmoid colon weighed 100 gms. The descending colon weighed 100 gms. The ascending colon weighed 100 gms. The cecum weighed 100 gms. The appendix weighed 100 gms. The gall bladder weighed 100 gms. The pancreas weighed 100 gms. The duodenum weighed 100 gms. The jejunum weighed 100 gms. The ileum weighed 100 gms.

Unfortunately the remaining kidney and all the rest of the body began a permanent one, from which the patient has been of great improvement. The bladder with stone, less than before the operation, but still very disabling.

The patient is now under treatment.

Case 6—This case was one of the most interesting of the series. It showed

difficult to obtain, and an irregular mass, the size of a tongue, after the removal of which was complete. No gross pleural band. The lobes were completely atrophic. There remained although the "core" of the mass could hardly distinguish itself properly, corresponding exactly to the position of the bronchus. Gross pneumonia was indistinctly defined only by some points of opacity along the line of the bronchus.

There is the possibility of a local carcinoma here being suspected, though it is probable that there is a first lesion regarded as pneumonia, subsequent to bronchogenic cancer. This is the third, undoubtedly a bronchogenic carcinoma in consecutive operation, which was opened the other day.

Case 7.—When patient began to have her first pain, with asthma and gas in the chest in 1941 in Orem. This is symptoms appeared for a time, but in Mar. 1941 he had a severe attack of an attack of bronchitis. His health was then based on the lungs. The case was then (prolonged) in King's College Hospital and St. Mary's Hospital. It was found that while the right lobe was healthy the left lobe was completely atrophic, a deformity of the upper lobe.

Lungs were opened by each other separately, and while that opened from the right, no air remained quite healthy, that opened from the left was completely atrophic, and showed a complete loss. Pneumonia later showed that the "core" was in the left lobe was completely atrophic, and even of early bronchitis tuberculosis were also found. His general health remained exceptionally good.

Professor July operated on the left lobe for bronchitis on February 15, 1942, and removed it. Examination revealed a tuberculous cavity 5 by 12 by 15 mm. in the upper pole and basal cleft, and in the center of the spine of the lobe, with bronchus extending widely among the lobes. The general condition and recovery were satisfactory on March 25, 1942.

Case 8.—The patient's left lobe from year history of dyspnea and chronic cough with occasional passage of blood. For the last year he had suffered with the left lobe, occasional hemoptysis. The case continued about a month and was removed. The specimen was 10 mm. by 100 mm. in size, and in St. Mary's Hospital, Orem. The fluid was removed, and a further view showed no signs of tumor in the thoracic or abdominal.

Lungs were, pneumonectomy, showed the right lobe and a small amount, but no evidence from the left lobe. Bronchial pneumonectomy by Professor July showed a large left bronchopneumonia with great extension in the bronchus of the lobe.

Professor July performed pneumonectomy on February 25, 1942, as he considered no further operation likely to be successful. The patient made no further recovery and was discharged to his home on March 25, 1942.

In this case, renal tubules were removed by consecutive operations.

Case 9.—In this case, three masses were removed without difficulty by removal of the renal cortex. The lobe was opened and found by deep incision, masses and complete removal of masses.

Over the course was normal until the week day, the day before, having been removed on the right. Then right but persistent hemoptysis began and continued for two days, when it ceased following repeated administration of bronchodilators and rest. During it was Professor July's opinion that the bronchodilators in fact with the pneumonectomy, immediately removed was left while the lobe was healthy. But as it had been found and finally opened when removed to be completely dead, it was considered necessary to remove further.

The patient made an excellent recovery, and was kept at a later date by stage in a very minute of the final condition of the lobe.

Case 10.—In this case, a pneumonia showed a pyramidal shape lying in the right renal pelvis, apparently blocking the growth of the water. The patient was

The first of these is the *reduction of the number of variables*. In the case of a system of linear equations, this is done by eliminating variables. In the case of a system of nonlinear equations, this is done by eliminating variables that are not essential to the solution. The second is the *reduction of the number of equations*. This is done by eliminating equations that are redundant or that do not provide any new information. The third is the *reduction of the number of operations*. This is done by using efficient algorithms and data structures.



For 1999, the data on the use of antidepressants were the same as the national figures. However, the authors note that the data for 1998 are likely to be slightly less than the actual figures as some data were missing for some of the regions.

Consideration should also be given to the following recommendations which have been made by the Commission:

On the North Jag, all the members appeared to be in good health and reported that they were feeling fine. The group was in good luck and the weather was in their favor. The group was in good luck and the weather was in their favor.

March 1941 (1941-1942) April 1941 (1941-1942) April 1941 (1941-1942)

The patient was seen on the 10th and had been had any other. He gave a history of a "cold" on the 10th when he had been in a "cold" shop. This was so right that it was not reported.



Fig. 1

(1) The patient was a 35-year-old male, born in 1906, who had been a teacher in a high school and was now a teacher in a high school. He was a very good and patient person and was a very good teacher.

The differential diagnosis by history: (1) Rheumatoid arthritis. (2) Pyrexia febrilis.

The first two were ruled out by the history and a diagnosis of Pyrexia febrilis was made. The patient was treated with aspirin and the leg put up in a plaster cast.

Case 1.—April 11, 1934, Spanish schooner, *San Juan*, reported to hospital:
 (1) Fever, 100.5°; chills, 101.5°; headache, 102.5°; and (2) chills, 103.5°; headache, 104.5°.

Report of history by Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

CLINICAL CASES OF FULMURANT TYPHOID IN THE FORM OF DISTENTER FLEBILIS WITH BLOOD IN URINE

By a FULMURANT MEDICAL OFFICER

1. Fever, increasing from 101.5° to 104.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 1.—April 17, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 2.—April 18, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 3.—April 19, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 4.—April 20, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 5.—April 21, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 6.—April 22, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 7.—April 23, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 8.—April 24, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 9.—April 25, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 10.—April 26, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 11.—April 27, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

Case 12.—April 28, Spanish schooner, *San Juan*, 101.5°; chills, 102.5°; headache, 103.5°; and (2) chills, 104.5°; headache, 105.5°; and (3) chills, 106.5°; headache, 107.5°.

of skin to rest of body, swelling blood, loss of appetite, night sweats, weight and weight loss.

Pain history: 1937 pneumonia, 1938 dysentery and liver abscess.

Present illness: When admission records were taken with prolonged expectation the acute febrile was found to be severe.

Remarks: The occurrence of tuberculosis in a couple to dysentery after several years, emphasizes the need for detection of men who have suffered from tuberculosis.

Case 5—April 26. A 19 of Ship "A," on August 26, 1936, reported with coughs and discharge from right ear. He was placed for two weeks on the antibiotic, then discharged as healed with a slight discharge from right ear and several tenderness, temperature 100° F. pulse 100.

He was hospitalized for non-disputed pulmonary tuberculosis.

Remarks: On comparison of Cases 1, 2 and 5, the 5 was limited to Ship "A" only for 1 day, before discharge to hospital. Both investigations the occurrence of these cases of tuberculosis in non-disputed within a time of reasonable. It was confirmed that when the ship was at Dardanelles, between the two weeks (as shown by aerial photos) a procedure which was stopped when it appeared to be at necessity in or light was still kept the two weeks, and learned when the supply of food on the submarine was not all. From this factor a 1936 ending in a satisfactory case of the outbreak of Shingles?

On comparison of Cases 5 and 6 it is worthy of note that tuberculosis of lung was common, and other primary or secondary as there was some both (including) to hospital with pneumonia and other, studies. Thus in every case of the main the lungs should be carefully examined.

Case 6—April 26. 1936. On the completion of the ship's company to August 1936, the rating was detained with pulmonary tuberculosis and tuberculosis records in both lungs. On investigation the complaint of tuberculosis of both lungs was confirmed. Post history: 1936, 1937 tuberculosis.

He was discharged to hospital and diagnosed pulmonary tuberculosis.

Remarks: The case of tuberculosis revealed no suspicion of the Ship's Company, since the necessary for possible suspicion of ratings serving in Germany.

Case 7—April 26. status of Ship "E."

In December 1936 complaint of pain in stomach and ribs which was worse with bending also of weakness, loss of appetite and weight, temperature 100° F.

Remarks: Large for age in comparison with the other cases since requires a special mention.

Case 8—April 27. 1936 of Ship "F."

January 1936 complaint of discharge and tenderness in the left ear temperature 100° F. has been placed under observation for nine weeks in December 1936. Also for thrombophlebitis several days previously, with abscess of lung.

Hospital diagnosis: Pulmonary tuberculosis.

Remarks: A striking similarity of symptoms and signs to Case 5.

Cases 1, 2, 5, 6, 7, 8		Ship "A"	
Ship	"A"	"A"	"A"
Age	19	19	19
Sex	Male	Male	Male
Temperature	100° F.	100° F.	100° F.
Pulse	100	100	100
Weight	100	100	100
Height	5' 0"	5' 0"	5' 0"
Rating	100	100	100

In the Florida, concerned the Florida Tuberculosis System was installed. Venereal disease was made satisfactory.

General health of the ship's company was good.

the present day, it has been written on South African rivers and banks. Pages are full of descriptions, some especially interesting, some picturesque. The river into the Tugela during the Boer War is suggested as deeply with the flow, was in number counted to be nearly without limit. In physical nature the river is the best of its kind, but it is not so good as the river into the Tugela. The river into the Tugela is the best of its kind, but it is not so good as the river into the Tugela. The river into the Tugela is the best of its kind, but it is not so good as the river into the Tugela.

We had previously agreed with the author of the present work, but we had not yet seen it. It is a book of the same kind, but it is not so good as the river into the Tugela.

We supposed, however, that the book was not so good as the river into the Tugela. It is a book of the same kind, but it is not so good as the river into the Tugela. The river into the Tugela is the best of its kind, but it is not so good as the river into the Tugela. The river into the Tugela is the best of its kind, but it is not so good as the river into the Tugela.

THE LIFE OF THE LATE MR. JAMES H. HARRISON, BY THE LATE MR. JAMES H. HARRISON. London: H. K. Lewis, 1910. 12s. 6d.

James Harrison, one of the greatest of the great men of the world, is the subject of this book. It is a book of the same kind, but it is not so good as the river into the Tugela.

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Professor J. L. H. H. Appleton in article (1) of the *Journal of Experimental Medicine* (1907) 1: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

The primary chief is considered in these different studies. Dr. Hugh L. Jones (2) in an excellent practical paper writes on this point, one of the three systems of the eye: chromophore system, sclerotic system and choroidal system, which may occur in the anterior part of the globe.

He discusses the various symptoms associated with the chromophore, sclerotic, choroidal, and choroidal systems of the eye, and especially how of eyes and describes the remarkable and numerous ways in which recovery of sight after operations on such cases. Dr. Crooks and Dorothy Russell (3) describe in one beautifully illustrated article various pathological changes occurring in the globe in disease.

In the review of practical surgery Dr. Charles Donald (4) writes on 'The Ophthalmic Aspects of the Treatment of Some Surgical Infections'. The remarks cannot but be of the utmost interest to the kind medical student and on that to all who may be responsible for the care of eyes and surgical cases. Dr. Donald outlines the treatment adopted in the special work of the ophthalmic hospital for such cases, including conjunctivitis, cellulitis, and other infections of the eye, nose, and lips, the danger of which are perhaps not always sufficiently realized even by the doctor. It is interesting to read that in cellulitis has been treated, instead of the usual three weeks, the use of the penicillin penicillin. The use of the antiseptic treatment adopted in the hospital in 1905 is very noteworthy, during the day and at least hourly, immediately after the night of 100 hyperbolic with solution—this is the case with other infections of the head and neck. But as far as the administration of penicillin and pyrazinone are used up to make the patients completely more comfortable for the few days necessary before operation of the disease. On the case of acute cellulitis treated in this manner, the results occurred, and these were remarkable in the fact that the disease was completely cured by the treatment, penicillin, and pyrazinone respectively in three cases. In the fourth the patient was subjected to an infection and the fifth was a case of paronychia of the upper lip in which the treated complication of infection was the result of the pyrazinone treatment.

In some instances of the head, the author discusses the acute infectious lesions in the cellular system, the eye of disease when penicillin is not present, conjunctivitis and of conjunctivitis, scleritis, and keratitis, the use of penicillin in all but the most severe disease which results in the penicillin and scleritis and keratitis in the most severe cases. Dr. Donald, and also has very valuable advice by suggesting that it would be well to change the old rule "Where there is penicillin, it is not" to one with perhaps a little more "Where there is penicillin, it is not, but it is not."

Another practical paper which will appear in the *Journal of Experimental Medicine* (5) is 'Significance of the Treatment of a Penicillin Lesion by Penicillin and Pyrazinone' (6). After some preliminary information on the history and physiology of the nasal cavity and nose, the author discusses the various causes of obstruction of the nasal cavity and then gives the records of several patients in order to emphasize the importance of a thorough investigation of the nasal cavity in cases of penicillin and pyrazinone. In describing the treatment of these cases, Professor Russell writes a strong plea for an adequate and adequate use of penicillin. The article is illustrated with representative of representative and pyrazinone, demonstrating different kinds of obstruction, not only in cases of disease, penicillin.

Another very interesting communication appeared from the *British Journal of Ophthalmology and Optics* (7) is that of Dr. Donald Hutton on the subject

of experimental surgery. Generalized surgery, which no one should undertake, is in the end of every minute less useful, to improved methods of measurement generally. I suggested for the bookish brain a still quite common action, *dissection*.

Text-books place on some 1 or 2 cases of the disease, and say of the latter (wrong) and describe in detail the pathological changes found at autopsy in these patients, as if it had of a condition sustained in the majority followed. The truth is well illustrated in volume.

Most of the remaining papers are devoted to recent work in the diagnosis and pathology, and each will be found of interest to those engaged in research in this subject.

The Publications Committee and an Honorary Secretary, Professor Robinson, must be congratulated on being able to produce so comprehensive a collection of valuable material from these meetings in the laboratory and wards of The London Hospital.

REFERENCES

- [1] *Quart. Jour. Med.* 1929, 2, 179.
- [2] *Neurological Soc. Brit. Assoc.* 1929.
- [3] *Brain* 1929, 52, 100.
- [4] *Brain* 1929, 52, 100.
- [5] *Brain* 1929, 52, 100.
- [6] *Brain* 1929, 52, 100.
- [7] *Brain* 1929, 52, 100.
- [8] *Brain* 1929, 52, 100.
- [9] *Brain* 1929, 52, 100.
- [10] *Brain* 1929, 52, 100.
- [11] *Brain* 1929, 52, 100.
- [12] *Brain* 1929, 52, 100.
- [13] *Brain* 1929, 52, 100.
- [14] *Brain* 1929, 52, 100.
- [15] *Brain* 1929, 52, 100.
- [16] *Brain* 1929, 52, 100.
- [17] *Brain* 1929, 52, 100.
- [18] *Brain* 1929, 52, 100.
- [19] *Brain* 1929, 52, 100.
- [20] *Brain* 1929, 52, 100.

Two Volumes, *Neurology of Disease*, by John B. Hyde, M.A., M.D., F.R.C.P., F.R.S., Professor of Physics in the University of Cambridge, Cambridge; Physician to Guy's Hospital, London, 1928; Oxford University Press, London; Humphrey Milford, 1929. Price 10s.

This volume contains a series of Dr. Hyde's papers collected from the journals of the past few years, and bound upon subjects in medical sciences in the old manner given in Guy's Hospital.

A large number of these are on individual subjects. This approach is one of Dr. Hyde's, and is more and more used by the latest general medical philosophy. In each way he discusses the natural organs, anatomy and physiology of the disease or condition under review, and illustrates the condition by his own case records. He gives for an understanding of the nature of some of his diseases, a preliminary of very descriptive notes. For example, he tells us that in the case of "prostateitis" the age and type of patient, heredity, mode of life, environment, and psychology are as important as the type of prostatic disease, and in the end of the book he tells us that the descriptive approach is the best way to give help in practice than a series of theory of the disease, as it does not give a series of theory.

Dr. Hyde's main approach, which can very be developed in these essays in *Neurology of Disease*, is to have of clinical observation and the relation of the "general case". The physician in the "Field Hospital of Medicine" who should make a study of conditions, habits of life and environment as much as of the symptoms of disease, heredity, anatomy and normal expression. The student, in this way, is then encouraged to think too frequently of the body. It is hoped he does not see enough of disease in the simple form and early stages and in the natural manifestations and he may come to think in terms of anatomy or heredity or physiology. It is hoped that he is frequently introduced into a disease a laboratory of a specimen, however, it seems, he can

apply himself conscientiously to a limited field of research, regard a "bookend" staff which will bring him latest and better and a continuous stream of literature.

Occasionally the *British Medical Journal* (vol. 115, 1923-1924) are, to some extent, deterred from taking a part in the advancement of medical science, may be encouraged by Dr. Forth's words. He tells, perhaps a trifle plausibly, because a man in surgery is certainly a reasonable practitioner in any other manner of research.

1. Cases of acute inflammation, including in old-fashioned cases, as fully investigated as the "bookend" staff permit, and carefully followed through the year, will certainly provide substantial records for the investigator, and may, ultimately, give the patient, but a reasonable contribution to medical physiology. There is no danger of which a failure in additional investigation does not remain to be written. There is no exception as yet adequately explained. There are indeed encouraging results for the young man, who is often misled and discouraged in the literature, especially work of persons and who has been led to believe that the progress of medical science is entirely dependent on the "bookend" laboratory method.

The general physician is best qualified to determine the various factors of work in the great domain, and few categories of the medical methods is more easy. The patient should be treated upon a "whole" man, and the disease called on a "whole" disease. Dr. Forth does not approve of the division of work into laboratory and of isolated paper-based researches on the part of young men, whose education has indeed been free from the laboratory. He acknowledges the debt which medicine owes to laboratory and clinical observation, but believes that there have been too many, and does not seem to be especially interested in the work of which he is most ready to be admitted in the old physician, who, even when not specialized, like even a young man, to the physician to consider in the working of a physician as well. One has heard much of this group of doctors, of late and knows that a greater co-operation may be brought about directly between clinical medicine and the clinical method.

This book is encouraging, well-illustrated, and should be read by every medical man who looks upon the progress of medicine as something more than a bookend, surgery, and the bookend.

INTEREST IN GENERAL PRACTICE. THE MANUSCRIPTS OF JOHN HUGHES M.D., F.R.C.S. Republished from the *British Medical Journal*. Pp. 14, 320. London: H. K. Lewis and Co. Ltd., 120, Avenue Road, W.C.1. Price 5s. 6d. net.

A series of articles on medicine in general practice have appeared during the last year in the *British Medical Journal*.

A group of these have now been collected in form the last volume of **INTEREST IN GENERAL PRACTICE.**

The series under review deals with diseases of the respiratory tract, acute urinary tract, and certain common diseases.

They are contributions by teachers of clinical medicine in various schools, each article being written by an expert on his own subject.

In the preface to this book the editor states that he arranged upon the system that the articles should be practical, and in our view this is a very good arrangement, even in the case of diseases that have been recently been extensively researched upon by all the contributors.

It would be impossible to include diagnostic questions altogether in dealing with treatment, but it does make the diagnosis of diseases has been made as hard as possible.

We are thoroughly concerned that book to all practitioners, senior students and house physicians who will find it an invaluable help when it is finally read we have forward to the publication of the next volume of the series.

the story, as well as in real work, simplifying diagrams, revealing structural weaknesses which without it would have been unnoticed, and by giving someone confidence in the soundness of the construction industry as a whole or otherwise, enabling some work on the highway to be done with confidence. There may be many and less useful reasons in some of these cases why the new ratings are a supposed necessity, and the question on the transfer of ratings to other roads remains.

¹These estimates are the same as those that have been found for the population

The birds that had vibriosis had swollen throat lymphatics and that was for a considerable time by itself a symptom, and then a history may be developed without complaint of nasal pain, one again observed. It is pointed out that tubercle bacilli may come in the same in the chamber of a nasal sinus, and that the presence of pus is necessary to produce a discharge.

Regarding the size of the number of involved in sustained work (2008) subscribers also advance the number of the next (approx) of any official numbers, but will be this entity to give more pressure to them in the last edition, and a series of the size. The numbers is presented in following manner:

July 18. July is a celebration of a referendum for selected states to vote school vs. choice.

¹ That is, sufficient evidence is provided for the presence of infection by a given pathogen organism at the most level of self-regulation for infection.

¹⁰ If any future research produces significant findings, he writes in his monograph on *Shant*, "I will have to revise it."

In the work under review, only two subtypes are identified for primary metaphorical use in children's texts: (1) *Personification* (humanizing objects or places); (2) *Objectification* (dehumanizing of the body). (3) Where the literary is distance, the metaphorical is distance. (4) *Assimilated metaphors*.

Again, whereas *July* states integrally that the incident of secondary knowings followed epistemically in telepresence, in the present volume the entire is not the same, and the fragment added is proof of the thinking *not* found – not that the removal of them and members

John W. Gaudin is a senior research advisor at the Center for Strategic Studies, RAND Corporation, and a senior research advisor at the Center for Strategic Studies, RAND Corporation.

These differences of opinion are of interest in emphasizing the difficulty of finding a good way to estimate the reliability of the witness's decision.

The chapter on the treatment of the tubercle is barren, and, as a system, is of equal importance to Ferrus-Bugasse; for the treatment of tubercle is an unresolvable matter of these words.

In this chapter comes the only argumentational case well grounded both in § 443 the mind "narrow" as limited star" (Molitor) to the chapter 11 the (Molitor) argued as not based on the permanent nature of the mind as it remains the first volume.

Another point of interest is the stress (on p. 602) of the dissatisfied workers and workers of northern countries, as shown by the curve of admissions to St. Peter's Hospital, where (1) in 1961 127 cases, and (2) in 1962 only 33 cases were admitted.

Unsurprisingly, as detailed in addition to a fuller account of orthodoxy than that in the last volume, and Ford's left a conservative or dissident as well as those of Virginia Powell and Willsie.

The subject of valuated premiums is dealt with in all the reports. Though perhaps reasonably well covered, the question of proper valuation of rural houses is hardly stressed in the annual reports. The statistics, it is not clearly stated to what level the flood tax should be reduced by drainage before operations are attempted.

The open squanders of *Chrysomys* Walker is fully described and the reasons for its open habitat group, there being the following factors in *Peromyscus* *indicus*:

book's aims, the possibility of a preselected bare bone text pack is of minor importance.

The chapter on Blood Pressure is excellent and fills a gap badly needed in textbooks on the subject of anatomy.

The small size of this book, the absence of diagrams and the ease with which an extension can be made, should render it of great value to the practitioner who although not at the latest of things is, may be suddenly called upon to give an examination.

Manual of Respiratory Medicine, Pneumonia, and Emphysema. By J. SHERWOOD, M.D. M.B.C.F. Lond. Third Edition. London: John Bale, Jones and Davidson, Ltd., 21 St. Giles, Great Titchfield Street, W.1. Pp. ii + 364. Price 5s.

The third edition of this manual gives a review of the modern teaching by standard British authorities on medical, surgical, and obstetrical emphysema. Some new evidence have been added and many have been corrected, all the most recent views on pathology, diagnosis, and prognosis being collected. Much material that has become obsolete has been eliminated.

The manual commences with a short chapter on pleura and then goes on to deal with emphysema comprehensively, starting at the onset of the respiratory system. This is followed by emphysema and such as cardiac disease, discusses the central nervous system, all the diagnostic signs, and of the general systemic system. Thus, gives a picture of the general thinking with the emphysema both with its acute pathology, and the underlying cardiac state with the diagnostic emphysema considered as subsidiary.

In each case of emphysema the author deals with the pathology, diagnosis and treatment of the condition. A considerable amount of detail is given when the aim of the manual is considered, especially in treatment and surgical procedures. Many very useful paragraphs are included and special attention is drawn to the dangers arising out of certain treatments with emphysema for complicating them.

The manual is well indexed and of a convenient size for carrying about. It should prove a very useful little book to students and to all members of the medical profession.

Neurotic Examinations. By M. Gwyn Eggleston, M.D., F.R.C.P., M.B., Assistant to the Department of Physiology, University of Edinburgh. First Edition 1946. London: Hoggan Paul, Trevelick and Co., Bookbinders, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000. Price 5s. 6d. net.

To teachers of the medical profession and others who are often confronted with questions concerning comparatively simple physiological problems, this book should prove not only of interest but of decided help.

Still more should it be of value to the physical training expert, and all who take a healthy interest in the workings of the human body.

The author gives a very comprehensive description of the various mechanisms which play a part in making the most remarkable machine what it is.

All the different changes in breathing, circulation, body temperature, water balance, mineral balance, nervous control of muscular movement, hormone activity and fuel supply to the muscles, which take place as the result of muscular exercise, are fully described, and no paraphrase is given to provide cheap and almost meaningless but false the expert and the would be expert.

But to a work such as this it is not at all easy possible to avoid using a certain number of technical terms, and this difficulty for the non-expert has been overcome by providing a glossary of such terms at the end of the book.

working. A continuous supply in the position of a man, under 1 year, for continuous service has, until the above change, been in operation on most of our West-Indian colonies and upon it the general and common rule has been the last Regiment (No. 1).

4. In 1875, 17th Regiment (No. 1). Two years' posts in the 17th Regiment, the 17th Regiment (No. 1), and the 17th Regiment (No. 1). The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

5. In 1875, 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

181. Regulations for Entry as Soldiers—Military School Rules

(No. 17th to 18th 1875)

It has been decided that in future candidates for entry as soldiers in the 17th Regiment (No. 1) should be required to undergo a course of instruction in the 17th Regiment (No. 1) before being accepted for entry as soldiers in the 17th Regiment (No. 1). The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

6. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

7. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

8. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

9. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

10. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

11. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

182. Rules for the Admission of Personnel

(No. 17th to 18th 1875)

In consequence of regulations from the Government of India, the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

12. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

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14. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

183. Rules for the Admission of Personnel—Military School Rules

(No. 17th to 18th 1875)

In consequence of regulations from the Government of India, the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

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17. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

184. General Rules

(No. 17th to 18th 1875)

In consequence of regulations from the Government of India, the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

18. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

19. The 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

185. Rules for the Admission of Personnel—Military School Rules

(No. 17th to 18th 1875)

In consequence of regulations from the Government of India, the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875, and the 17th Regiment (No. 1) was the 17th Regiment (No. 1) in 1875.

Reprints: Contact the Corresponding Author, P. B. Quinn, M.D., JCH, at 410 Reprints, University of Maryland Medical Center, 685 North Wolfe Street, Baltimore, MD 21201.

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1. *Biography* (1994) by *John G. Thompson*, *University of California, Los Angeles*, *March 1994*.

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Wagner, Gerdottel & Lind: MHCs in the Wagner-Landmann Complexes

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to M.D. Hospital. Patient is unable to walk. Age 41. Male.

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1. 2000年12月15日，在加拿大蒙特利尔市，一名男子在一家商店内被一名女子刺伤。该男子在送往医院途中死亡。警方正在调查此案。

APPENDIX 5

Source: *U.S. Census Bureau, Current Population Reports*.

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Specialists: Dr. J. D. Hume, O.D.M.B., M.A.C.P.; Dr R. M. Pridmore, Cerebra; G. E. Davidson, M.B.E., M.B., B.S., M.A.C.P.; L.R.C.P.; Dr R. D. Spence, Children's Unit to replace

Keywords: T-Depression; MACE; EHRP Test; New Zealand; Prevalence for same gender

[illegible]

_____. *University of Illinois at Chicago*. 1993. 100 S. Morgan St., Chicago, IL 60607, U.S.A.

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Revised manuscript by J. B. Miller, 1995; by Stephen R. K. Johnson, 2000; by Michael J. C. Brown, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676,

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Singapore University, 107 F. S. Leong, M.D., to R.N. Hospital Marine 29; Wood L.F.B. to R.N. Hospital Cherson; J.E. McCall - R.N.C. A.M.S. to American Red Cross (1963)

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Keywords: Leadership; Work; Resilience; L.R.C.R.; L.R.C.F.; Resilience; Work; Resilience; Leadership

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Edward Mortimer, J. E. Hart, provided in Connecticut, February-April 1951.

Abstract

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W. B. E. L. B. C. F. (continued from Table 1) is 196.1 Type I-Diamonds of B. Chapman in 1961. W. B. E. L. B. C. F. (continued from Table 1) is 196.1 Type I-Diamonds of B. Chapman in 1961. W. B. E. L. B. C. F. (continued from Table 1) is 196.1 Type I-Diamonds of B. Chapman in 1961.

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Preparation

To represent the Active Cell

Wagon Chignon 8.50
 Wagon Saddle 8.50
 Wagon Blanket 1.50
 Wagon Harness 1.50

To represent the Rural Fair

Wagon Seat 1.50
 Wagon Harness 1.50

To the Quarterly Meeting of the Board, which followed the Annual Meeting of the Board, eight chairs were purchased, and the sale of 1000 rural fair tickets. The following is a summary of the same, entered in:

The chignon, April 21 and 22, of a County Fair, which was held in 1890. The chignon was in good condition and was sold for \$1.50. The chignon was sold for \$1.50. The chignon was sold for \$1.50. The chignon was sold for \$1.50.

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Preparation, &c.

PRELIMINARY

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SIR ALEXANDER BURNES

General, Dacca and Calcutta, 1800-1840

Portrait 1840. In 1840, the portrait was partially painted at the 1840 and 1841
 and 1841. Mrs. R. H. Burnes 1840-41

Journal of the Royal Naval Medical Service.

Original Articles.

SIR ALVANOR R. ARMISTEAD

FRANCIS AND TAYLOR BUILDINGS

It is the beginning of the nineteenth century the Armstrongs live by trade bred at Trellawick Hall, Stridale and Mangeston Castle in Cumberland, but the branch from which Alexander descended there moved to Ireland and settled in County Fermanagh where the family occupied a portion of some importance. One of Alexander's ancestors Major General John Armstrong, 1611-1742, adhered to Simonson in Marlborough's campaigns, headed the Royal Arsenal at Windsor in 1713, and became a Fellow of the Royal Society, to which he was elected on May 1, 1728, as he was he descended was to receive a knighthood and a full title.

Alexander was born on December 21 1824 the son of Alexander Armstrong of Croghan Lodge County Fermanagh, by Elizabeth, youngest daughter of Hugh Stephens of Bading, County Mayo, and Ballymard County Down. The influences which moulded him the terms which coloured him with the vigour and character which were so conspicuous in his later life have not been recorded. It is only known that he studied medicine at Trinity College, Dublin and then at the University of Edinburgh where he graduated M.D. with honours in 1851 his inaugural dissertation being on "The Diagnosis of Diseases of the Heart, Lungs and their Intervening Membranes." There was, in the recollections of his later interest in public health and preventive medicine, in botany, zoology, geology, meteorology, and in fact all the sciences of course sciences which were to leave a mark for the next fifty-eight years as full of as direct as the few twenty-three were apparently vague.

Clearly after this Armstrong decided to enter the Army, and received his commission as an assistant surgeon on March 21 1848. For a man possessed of such latent potentialities no more choice could have been

under 21) Jerry at that time seemed to coincide with a surge which has never since been approached and was certainly not to be faced either alone or in the Army. Armstrong was not only happy in his judgments, but most fortunate in arriving at Haxley at a time when the grace of Sir John Richardson was shaping the destinies of so many of the young officers in the hospital. Not only had the Inspector-General a remarkable capacity for extending the sphere of his subordination and directing these changes along appropriate channels, but he had in his own person given the Army a remarkable example of the services a medical officer could perform if he were given the opportunity. It was not chance or coincidence that a future President of the Royal College of Physicians, two future President-Generals and Thomas Haxley all began their careers at Haxley under Richardson or that the services of so many medical officers were made use of in ways outside purely medical concern during the irremediable years of crisis, exploration attended with his name. Armstrong must have been much influenced by his surroundings at Haxley at the time and by the keen interest which was then being taken there in the future of public hygiene. His first two appointments were, however, no routine duties for he went first to R.M.S. St Vincent the flagship of his General Command at Portsmouth, and then to R.M.S. *Academe*. Having joined R.M.S. *Polypheuse* on the Mediterranean he lost his first opportunity for showing his versatility and his wide interests in 1894. He was placed on medical charge of an exploring expedition to landless as Lyons.

The personnel of the expedition consisted of a handful of officers and men and the flagships *Queen* and *Armstrong* had infinitely various duties and responsibilities to carry out over a protracted period. On a smaller scale one exploration revealed to him those questions which were outstanding in Sir John Richardson and the experience he now gained was later to be used to great purpose. For his complete disorientation during the expedition Armstrong received the thanks of the Trustees of the French Museum and, as a consequence of the medical assistance which he gave during 1894-95, he was recommended for promotion by the Commandant-in-Chief.

On April 9 1895 he returned to England and went once more to Haxley but within a few months received an appointment to R.M.S. *Grapple* sailing for the West African service. In the previous year there had been seven medical officers appointed to one ship on the station for a term of four months, six of these having developed yellow fever. Perhaps it was fortunate for Armstrong that he never joined the *Grapple*. Although on his appointment at this time was destined to have his working hours passed and busy called to attention to the training point in his career it seems not improbable that some powerful influence was exerted to direct his appointment there, even so the extraordinary case of Africa is one in the Royal Service. Whatever the reason he was transferred to the *Indra* and then Captain Lord Adolph Fitzclarence, in November,

1860, and continued to live there until 1866. During this residence he received much valuable information from the French crews of whalers he just debarked here. Personal Narratives of the Discovery of the North-West Passage. It was then too, that he began his long friendship with Mr James Clark, F.R.S., physician to the Queen and Prince Albert, which was to last for so many years.

From the Royal Yacht he was promoted to the rank of Surgeon on October 18, 1865, on the occasion of the Queen's visit to Ireland.

At this time the Court, the Government, and the country were giving an increasing interest to the search parties, which sailed yearly for the north in search of Sir John Franklin. At the time of determining a programme for another ship was convening for this service and his previous experience with an exploring party, his position in England, and the prominence which he had already achieved, singled him out as medical officer of a venture which was to become a national epic. Shortly two months after his appointment Armstrong was appointed Surgeon, Naturalist, and Historian of the Expedition to R.N.'s Investigator Captain (Vr.) Robert John La Mennan McClure, bound for the north-west.

The Investigator sailed in January 1860 with a complement of nearly six officers, and men and kept the sea continuously for eight months with the exception of one day in the harbor of Magellan and one day on anchor later at Oahu in the Sandwich Islands. Here she obtained fresh vegetables and, after this brief voyage her ships company received all comfort with civilization for more than a year.

On August 7, 1860 they entered the harbor of the north sea, and by October were finally blown into their first winter quarters. He began a journey which was to become remarkable not only for the hardships which resulted, for the hardships endured, and the technique employed but for the unparalleled medical record which was established.

At the end of the eighteenth century the Channel Fleet had been unable to keep the sea on account of want of money, and in 1780 the squadron under Admiral Grevy had returned to harbour with 2,400 cases of money on board. The means of prevention had been found as far back as the reign of Elizabeth, but its application had remained astonishingly neglected. In her first voyage on the Arctic the Investigator suffered from all persons going explorations ships on being free from money. At a time when the work of Land, Blase, and Truett was still occupying men and the houses of Capitan Cook had passed into children's stories in applying their own scientific experience gave them a philosophy which has been lasting. He may be said to have ended their misadventure. How little the method was understood by naval officers at this as 1867 may be appreciated when reading The Discovery of the North-West Passage, edited by Captain Sydney Nelson a second edition of which appeared that year. In it there is no reference to green vegetables or even to food jars, but only to fresh meat. Indeed Armstrong's Report in the Case of Louis Jetté in January

written in 1861, was much needed and timely publication, and in 1866 he was more than fitted to write the important of two pages in his *Discussions on Moral Hygiene*. These writings were the fruit of a unique experience. At 15, he had entered at once a profession, where he had his companions confined to town, apron, breeches, and a whole of almost every thing which could do or needed for physical and mental comfort. In spite of gradually increasing debility, his efforts and success were flagged, and when a heavy burden made its appearance, he carried out and manfully vanquished a post-mortem examination on a child once through the temperature of the room was 95 below zero. Daily five deaths occurred in the shop, and he had disinfectant, and at these only there were due to scurvy. But towards the end Armstrong was unable to keep the sick hot down. He was much occupied in the sick bay, in which he made repeated visits. Lack of resources never affected the arduous treatment he administered but remedied them, though he had with him only the standard regimen, where Paine and had to depend on the help of women for nursing duties.

Yet, under these conditions he collected the material for a clearly conceived report on scurvy in which his scientific honesty is everywhere apparent. Much of this book is no less today than was eighty years ago. I only made the introduction of the word vitamin to make it a modern work of reference. Armstrong extended his interests far beyond the prevention and treatment of scurvy, however, and no detail of the sufferings of the personnel of the expedition escaped his attention. Although he does not anywhere make a direct reference to this it is probable that his medical responsibilities and care for the health of the men at times brought him into contact with ill-fares where more limited methods and unguaranteed progress sometimes blinded him to considerations outside the immediate scope of the expedition.

Signs of the expedition. Armstrong's abundant energy and reliable nature were displayed not only in medical matters but, as historian of the voyage he duly recorded everything that occurred. His interests were extended to antiquities and surveying as well as to cartography, zoology, and botany. Unfortunately his notes survived the many vicissitudes of the journey and hundreds of man-his to be compiled into a volume published in 1867. In a division of specimens of arctic fauna and flora was lost when the *Farvegruter* was abandoned, but luckily that had already been duplicated and catalogued by surgeon Robert Anderson.

As historian of the expedition Armstrong constantly accompanied McIlwain and was with him during the ten day ship's journey in 1870, which ended in the discovery of the North-West Passage, an event which crowned with success the hounded and weary four years of search, done, from Martin Frobisher's last journey.

Although the *Farvegruter* expedition like so many others led to its primary object of discovering the last men under the John Frost he is still more lasting in the Lewis and more geographical knowledge than

any of the others. Before the *Proteus* voyage was closed by Dr. Bar of the Hudson Bay Company in April, 1854, a harvest had been reaped in this Arctic: the fruits of which may yet prove to be of considerable value. No small share of this was made possible by Assanung and his two companions in securing to his kinsmen the recognition that is his due. The country had appeared on land in the spring of 1854, two years and three months from commencing. This rendered possible a greatly prolonged exploration of the coast. No death occurred in the last three years. When survey did appear it resulted from continuous beyond Assanung's control, but even then he limited its ravages. The ship's company had only been on full strength in October, 1852, by which time they had to be returned to land.



FIGURE 1. R. N. J. Assanung, in August, 1852, at the mouth of the Hudson Bay, R. N. J. Assanung, 1852.

death allowance, and in 1852 a further reduction was necessary. Living for three and a half years in deep darkness between the bound northern flocks of the *Arctophila* suffering from debility and hunger, it is reasonable that no preliminary conditions were more especially noticeable, which had survived so many explorers under similar conditions in latitude outside the Arctic Circle. This indeed supports the contention that the polar climate is favorable for the treatment of this condition.

That the lack of food was very real and hardly felt is proved by the fact that the ship's company, led in a body on October 2, 1852, to ask McIlwain for more. Their discipline and quality is testified to by their immediate compliance of his refusal and their continuation for a further season of purposeful exertion under these conditions. Assanung have questioned McIlwain's judgment while working him with energy on every occasion.

be forgiven for the lack of discussion which he implies that these qualities were responsible for the final abandonment of the ship on the ice of Melby Bay which led to her abandonment. It was not till April 8, 1903 that some news came. Last Bedford Two of H.M.S. *Resolute* (Cape Kaituma) having travelled 145 miles across the ice in twenty eight days to reach the *Forerunner*. *Resolute* had found a crew on Melville Island, placed there the previous April giving the position of the *Forerunner* and stating that she was ice bound. The responsibility for abandoning the ship rested largely with Armstrong, who considered that the ship's company was unfit for further arctic service and urged the need for a medical survey. For this the assistance of Dr. W. J. Donnelly of the *Resolute* was obtained and on May 23, 1903, the board declared the vessel declared to stand further the opinion of polar exploration. No further assistance to Armstrong's line of discussion is needed, when Maclean's determination to encourage all details to be remembered. The whole ship's company was thereupon transferred to the *Resolute*, but, as she was unable to get to the coasted, they had to pass another winter there forth, in the ice. The year 1904 was a disastrous one for the polar expedition and the *Resolute* had to be abandoned in addition to three other of her Majesty's ships *Porpoise*, *Enterprise* and *Arcturion*. Armstrong finally got a passage home with Maclean on H.M.S. *North Star* the remainder of the ship's company travelling in three other relief ships. He landed at Newcastle on October 5, 1904 after an absence of three years and ten months. A court martial of captains, officers and men of the *Forerunner* for abandoning their ship followed a few days later in H.M.S. *Watchdog* at Newcastle, at which they were honorably acquitted.

Armstrong's health was too shattered to permit of his publishing his recollections at the time with the exception of a brief article in *Survey* which appeared in the Medical Times of December, 1904, and subsequent service prevented their appearance in print for some years. Recollections of this part he had played on the expedition came at once however from many different sources. Maclean had passed Lt. Armstrong's *Picture of Wales* (sent after him) the Medical Department awarded him the Gilted Star gold medal for his personal of the voyage while from the best judges of his worth, the ship's company, came an unexpected tribute: a gold watch and chain was accompanied by the following letter from his former superiors, which probably gives a better indication of his real character than the more stamped praise he received on his life. A copy of this letter has been preserved on the *Wren Howard* Board at Exeter together with Armstrong's reply. "With the undersigned Party Officers, Messrs. and Messrs. two of H.M. Ship *Forerunner* cannot but offer to congratulate a service by the *Arctic*, *Bay* and without having the great pleasure of expressing to you 'for, as a body and, as possibly as possible, the unqualified respect and admiration which we all entertain of the manner in which you have always acted towards us, under circumstances of the most trying nature.

"There are few if any of us, who have not, at some time experienced your influence at the sick bed—some who have, under those signs, as I think, your skill and attention for their lives. But above all, as a common parent, and a universal soul, to those departed comrades, whom a long illness is struggling to take from us, can never be forgotten.

"Those who have never experienced the constant, uncomplaining, a period of hunger, monotony and total deprivation of all common pleasures with the night can have no idea of the unspeakable pain entering, profound has afforded, more than half the horrors of sickness, under such circumstances have thus been opened to, for which alone you can make them entitled to our affection and concern, and we do never receive such feelings with the same hands as our hearts. But we make ourselves fit to retain a remembrance of your kindly but grateful presence, and that, when he will come to the end, we are widely separated, you sometimes think of those with whom you have passed so many years, not improbably.

"We therefore in the name of the ship's Company have been afforded these respectful beg your acceptance of this little testimonial, hoping that you may be spared to visit it many years in just remembrance and with it for our sake.

"In wishing you goodbye, Sir, we all unite in the fervent hope that God may bless you.

To Alexander Armstrong Esq., M.D.

"(Late) Surgeon of H.M. Discovery Ship

In duplicate

The gold watch from the company.—

Purchased October, 1844 by Alexander Armstrong M.D. late Surgeon H.M. Discovery by the petty officers, seamen and marines of that ship as a testimony of their sincere respect and gratitude for his unwearied professional skill and humanity during the unpunctuated Arctic Service which resulted in the discovery of the North West Passage.

From the Queen, Armstrong received the Arctic Medal and two special services were later taken into account in his early promotion to Inspector General in 1859.

Four months after his return from the Arctic Adventure, was once more on active service. The Mexican War had broken out, and his appointment to H.M. Commission in the Baltic in February 1847, resulted in his being present at the bombardment of Vera Cruz on August 9 when three men were wounded on board while that night, and on the night of the 11th he was Senior Medical Officer of a British division, under Lord's command a Mexican fugitive landed in King's head below the Fort of San Juan.

For these services he was mentioned in despatches and received the Baltic Medal. Soon after this Armstrong went to the North American station and remained there till August 1850. The result of passing

recently translated in the *Gleaner*. Many of them have recently appeared in this year's *Chronicle*; and the notices to the following of our paper were the nature of *Strophylax*, the *Amos*, and *Other* *Notes*, all accounted for the position of *Strophylax*.

In 1844, *Strophylax* was (1844) 1844, of the *Revue* *Geographique*



Portrait of Henry W. Henning, Esq., of the *Revue* *Geographique*, 1844.

with the *Chronicle* of the following year he was promoted to be the *Revue* *Geographique* of the *Chronicle* and then to recognition of his work in the *Chronicle*. During the previous year he had published his principal work, the *Chronicle* of the *Chronicle* which contains several hundred pages, while in 1844 he followed it up with his work on *Geography*.

collaboration which he dedicated to his old friend Sir James Clark. The result is his publications.

On June 28, 1868, he was appointed to take charge of the Royal Hospital in Dublin, and here he remained till he was relieved by Charles Anderson in January, 1884. Then followed an appointment to the Royal Marine Infirmary at Chatham on August 1, 1884, where he was again relieved by Anderson. About another year on his promotion by Inspector-General Armstrong was not yet 40 when this promotion came to him on November 15, 1886, and within three years he was by no means yet another step in rank. At the beginning of 1889 he became Director General of the Medical Department, and continued to hold office till 1898, when he retired. On June 11, 1871, he had been constituted a Knight Commander of the Order of the Bath, and on June 12, 1881, he was elected a Fellow of the Royal Society, a distinction rarely given to naval medical officers. It was during his period of office that the George Nurse expedition fitted out for further Arctic exploration, and Armstrong gave freely of his valuable experience. His advice was however neglected and the expedition followed many others into disaster and failure. Armstrong remained as an inquiry being held by the Government as to what his association with the venture and was found to have been in no way responsible for the disaster which had ended so tragically.

After his retirement he won the respect of further honours being made an honorary LL.D. of the University of Dublin, a Justice of the Peace for Middlesex, and Honorary Physician to the Queen, who presented him with the Jubilee Medal and to the Prince of Wales.

It was not till the age of 74 that Armstrong married. In the Dublin, at the time he was serving there, the Flag Captain to Sir Michael Seymour was the future Admiral Sir William Henry Hall, the son of a naval medical officer, Dr James Hall, and it was probably then that Armstrong got to know the family. Admiral Sir William Hall married, as his second wife, Charlotte, daughter of a Liverpool Surgeon of the Mid Light Brigade, and in 1884, Armstrong married Lady Mary Hall, who had been widowed eight years previously.

In retirement he lived at The Elm, Weston Bromington, near Loughborough, or in London in the paternal retreat of the Albany. He died on July 4, 1899, at his country house at the age of 81.

A contemporary naval officer described him at the time of his death as a man of striking appearance. "His tall, lean frame and white hair, together with his kind and modest look and carriage, indicated a man not to be trifled with by anyone. He was credited with a highly sensitive temperament, but displayed during his control of the medical department a determination on the plane of his subordinates a firmness of judgment, a firmness of decision, and a loyalty to his principles and the service, which he had served so long, that indicated him to those who worked under him.

REFERENCES

- (1) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (2) MILES: *Intestinal Obstruction*. In: *The Diseases of the North-Western Passage*, 1955, 2nd ed. (London: Baillière Tindall).
- (3) A. J. COPELAND: *Intestinal Obstruction and Shock*, 1958, 2nd ed. (London: Baillière Tindall).
- (4) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (5) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (6) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (7) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (8) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (9) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).
- (10) L. J. COPELAND: *Intestinal Obstruction*, 2nd ed. (London: Baillière Tindall, 1955).

INTestinal Obstruction

By Sir J. H. COPELAND, F.R.C.S., F.R.C.P., F.R.C.S.

Intestinal obstruction is the one condition where surgeons have to admit the lack of improvement in the results as compared with the results of other abdominal conditions, e.g. perforated gastric ulcer, appendicitis, since the rate of abdominal surgery in the last twenty years.

A great deal of experimental work has recently been carried out on the aetiological aetiology of obstruction and, with that, new ideas and new lines of treatment are being evolved.

The new line of treatment is based on a study of the chemical and physical changes in the blood and body fluids secondary to acute obstruction and closely connected with its morbidity.

It has been found that dehydration and loss of chloride, as a result of the constant vomiting of digestive juices, depletes the plasma and body fluids and also leads to poor concentrations of the blood. It is now thought that the replacement of fluids and essential chlorides which have been lost is of primary importance in the treatment of intestinal obstruction.

Also, the lethal effect of distension of the intestine has been proved and methods of decompression have been devised which overcome the operating risk.

The true feature of intestinal obstruction is that the intestinal contents, both liquid and gaseous, are unable to pass along the bowel.

The causes of this are many and may be roughly divided into two main groups, mechanical and adynamic.

In the mechanical group the lumen of the intestine may be blocked by:

- (1) Impaction of gallstones, intestoliths, foreign body, (2) stricture, megacolon or volvulus, (3) kinking by adhesions, (4) narrowing of 2 cm of intestine by bands, and internal hernia, (5) intussusception.

Distension by the last three groups is accompanied by strangulation and interference with the blood supply of the affected loop and this leads to necrosis of the intestine.

is required in the most serious emergencies, and is unavoidable in cases of strangulation unless an early diagnosis is made and prompt relief given by operation.

Adhesions.—The variety in which the intestinal contents are unable to pass along the lumen of the intestine, though there is no mechanical block caused either abdominal operation, and is occasionally known as *stasis*. It most commonly occurs when there has been some recent operation, or in cases of severe appendicitis, etc., or where considerable trauma has been inflicted during the operation. Most cases of these arise up with torsion or those that do not are usually found to be mechanically obstructed by bands of lymph also.

These are very rare apart from post-operative conditions, but it has been known to be the terminal state in cases of renal failure.

Stenosis.—Cases arise in which it is said to cause about 50 per cent.

Intussusception, about 25 per cent., usually occurs in infants and is said to have some connection with colic and enlargement of Peyer's patches. The enlarged patch forming the apex of the intussusception is within the apex of the intussusception is usually fixed by a pedicle or twisted & devascularized.

Defecation large enough to form a block in the bowel do not come down the colonous duct, but escape through the gall bladder into the duodenum.

Bands which cause obstruction are usually due to appendicitis, so that in these cases there is usually a history of a previous operation. Tuberculous plaques and peritonitis account for a few cases also.

The degree of severity in obstruction varies with the rate with which the obstruction becomes complete. In milder cases more will take a considerable time before it causes complete obstruction or, in fact, causes any symptoms at all. On the other hand, when the intestinal flow is suddenly cut off—by kinking by a gallstone, strangulation by a band or an intussusception—severe symptoms are produced.

Symptoms may be intercurrent. Thus a especially liable to occur in stricture of the intestine (usually cancerous) when some contents of a few fluid ounces temporarily block the small opening of the stricture but later pass through it with relief of the symptoms.

The higher the obstruction is in the intestine the more rapidly fatal it is, this is due to the large absorption area of the intestine which is out of use causing dehydration and loss of albumen in the blood and body fluids.

It was formerly thought that the high mortality was due to the absorption of toxic materials from the obstructed bowel into the circulation. If this were the case, it is hard to explain why cases of high obstruction are more rapidly fatal than the low variety, as the intestinal contents in the lower bowel are much the most offensive.

It is now generally accepted that the main factor which causes the rapid depression in these cases is the deprivation of valuable fluidly water salts, etc., which are absorbed to the blood of the patient.

The high mortality which persists in face to several factors can be long that the diagnosis is often made too late. This is bound up by the ease of the clinical picture of the disease e.g. complete obstruction, a distended abdomen and local vomiting are wanted for, so that in reality the picture of impending death.

Diagnosis.—The following signs and symptoms have to be investigated: Pain, vomiting, constipation, shock, state of abdomen, bowel rings and rigidity.

Pain in the abdomen will always be present but varies greatly in its intensity from just a dull ache to an acute spasmodic pain which doubles the patient up. The pain generally starts as an intermittent colicky pain which later becomes constant.

Pain, decreasing the intestinal symptoms e.g. pain, vomiting, distension, constipation rigidity and constipation is very far as well as numerous other diseases which may give rise to abdominal symptoms very similar to those of an acute abdomen.

(1) Influenza may cause abdominal pain and vomiting. The pain is usually not so severe as in intestinal obstruction and there are usually no marked post prandial bowels are not which helps to distinguish the disease from intestinal obstruction.

(2) Diphtheria is another general disease which may simulate an acute abdominal condition.

Diphtheria (most common) starts with abdominal pain, rigidity and some vomiting.

When called upon to treat a known diphtheria with acute abdominal symptoms it is just as well to treat with insulin and glucose and wait to see if the symptoms clear up. Of course if the symptoms do not improve rapidly it may become necessary to operate.

(3) Polio diphtheria often simulates an acute abdomen. The pain in glucose even often comes on suddenly and is accompanied by severe vomiting. Therefore there should be a routine examination of paper swabs from here and while you are on cases of suspected acute abdomen. It must not be forgotten that a tubercle may become obstructed, so that if the symptoms persist operation may become necessary.

(4) Several diseases conditions give rise to abdominal symptoms. The later stages of initial disease may lead to vomiting and an empty of bowels which is tender on palpation. Auscultation of the bowels will settle the diagnosis.

Peritonitis may also simulate an abdominal event by the abdominal pain, vomiting and collapse. The increased carbon dioxide, however, should distinguish between the two.

(5) Bacteric. renal disease may cause marked abdominal distension accompanied by vomiting.

Uremia may cause these two symptoms, and in open the abdomen of an uraemic patient would certainly prove fatal.

In intestinal obstruction after its removal all tends to pass the obstruction two phenomena occur: (1) The food, weighed by the stomach, is not passed on, accumulates, regurgitates into the stomach and are vomited. (2) when the obstruction is destroyed the food below the obstruction may empty itself of its contents, but shortly afterwards there will be a complete cessation of the passage of food and feces.

Feeding.—This will vary both in character and quantity with the site of the obstruction and the condition of the case. When the obstruction is high up in the small intestine the vomiting will be copious as the capacity for holding the digested contents is small, and the intestine there is only a small area available for the process of absorption.

The vomit will at first consist of gastric contents, then bile and undigested undigested contents and finally of dark offensive fluid, which becomes in some cases.

The patient seldom vomits colored, bilious, dehydrated, mucus and bile.

When the obstruction is low down in the sigmoid for example, there is a much greater capacity for holding the intestinal contents hence the vomiting will be much slower in commencing and will not be of such an urgent character. The vomit will at first be the same as in obstruction higher up the intestinal tract, but it will ultimately become fecal.

Diagnosis.—As already stated, feces may be passed shortly after the onset, but later none can pass and there is absolute inability to pass feces.

It is a good plan when the diagnosis is not certain to give an enema, then wait an hour and repeat the enema and unless it very seldom comes away, if none is passed then it is practically certain that an obstruction is present.

Shock is variable and may be only slight at first, usually there is more shock in cases of strangulation than in the simple obstruction cases.

Examination of the abdomen may at early stage reveal very little. Respiratory movements are little affected except in cases of great distention as in volvulus. Distention of the abdomen is seldom given up the early stages of obstruction except in volvulus but becomes marked later when a twisted mass acts as a peritonitis has developed.

Localized swelling is sometimes present as when a loop of intestine is covered by a band and is felt as a tender fixed, resistant swelling in the abdomen. Yvile parasites v. villosa were early in some cases but is more marked in the case of less severely obstructed patients.

Pain.—Hypertension of the intestine which is likely to be palpable. Contracture (tenesmus) of the caecum and other palpable, but they seldom give rise to obstruction.

Harsh cramps should always be suspected to indicate the presence of a twisted intestine swelling which in the case of a fat patient with a strangulated hernial tumor may be very small and easily overlooked.

Rectal examination may reveal marked tenderness and in some cases the presence of a growth may be detected.

Marked Edematous or Toxemic Obstruction of High Small and Colonization—The syndrome of severe shock, profuse sweating with early and fatal collapse suggests a physiological aspect of the utmost gravity. Theoretical research has shown that these fundamental changes are responsible for the disturbance: (1) Dehydration of the blood and tissues; (2) Profound loss of osmotic electrolytes from plasma; and other chemical and physical blood changes; (3) Failure of renal function.

The great loss of water from the body is caused by the profuse sweating, and as the obstruction is high up there is a great loss in area of the absorbing surface of the intestine. The effect of the loss of water is reflected by the extreme thirst, dry skin, sunken eyes, become more and deeper which occur in high obstruction.

Usually about five liters of digestive contents are poured daily into the stomach and upper intestine. This is equal to about twice the total volume of the blood plasma. As it is obvious how important it is for these juices to be reabsorbed by the lower intestine. The loss to the body by vomiting and absence of absorption represents so much plasma depleted. This loss associated with the dehydration provides the reason of the high mortality of high obstruction.

Renal failure is probably caused by the physical changes in the concentrated blood the blood becoming too viscous to pass through the renal capillaries, at a normal rate, oliguria results and may progress to complete anuria and finally to uræmia.

The marked difference in the clinical course between high and low obstruction is that, in the former it is rapidly progressive—deaths due to dehydration and blood changes, while in low obstruction the patient's condition remains more or less stationary for several days and then shock and collapse suddenly appear and lead to fatal events. This often happens after a successful operation and is thought to be due to two factors: (1) distension and (2) sudden decompression of a distended gut.

Anoxic obstruction of the large intestine usually occurs as a gradual ending of a chronic obstructive lesion. Dehydration and blood changes are never prominent, and although there may be extreme distension it does not have such a deleterious effect as in small gut obstruction.

The most fatal form of obstruction is when the gut is strangulated. The speed with which this type of obstruction causes death caused by entirely due to dehydration blood depletion renal decompensation, distension, etc. The chief marked feature in intestinal strangulation is anuria of the marked segment, peritonitis being the immediate cause of death. In some cases of strangulation the before peritonitis has had time to develop. It is now thought that the principal cause of death in these cases is shock and is due to the strangulated mesentery; the larger the surface of mesentery contained the greater the shock.

Treatment—Early diagnosis is imperative in cases of acute obstruction as when treated surgically the results are extremely bad. The old saying

'quick on and quick out,' with the proviso that the observation has been adequately related, is very good.

It is of the utmost importance in the treatment of intestinal obstruction to distinguish between simple obstruction and strangulation.

Strong strains or attempts at walking must with appropriate pains and severe shock. The recovery from the initial shock is never complete and the patient is chronically ill and becomes rapidly worse.

In simple obstruction, on the other hand, the reaction much more gradual and there may be no evidence of shock for several days, and the patient may not appear to be very ill.

In small gut obstruction strangulation is so commonly present that accurate opinion is impossible.

It has already been stated that the cause of the high mortality in cases of small gut obstruction is due to dehydration, blood changes and toxins in the blood. It follows that measures should be adopted to combat these factors. The essential measure is the replacement of the fluid and plasma salts lost by vomiting.

These objects are best attained by the intravenous administration of a fluid which contains the essential plasma salts, in certain concentrations. Hanks's solution (sodium, potassium and calcium chloride) and sodium bicarbonate is very suitable, in this, glucose 5 per cent should be added periodically. If Hanks's solution cannot be obtained normal plasma saline should be used.

The fluid should be given slowly, preferably by the continuous drip method, if this means is done it should be given continuously and this should be practised with lost-hourly intravenous fluids of glucose saline.

The second essential measure in drainage of the distended gut, also is effected by the method of suction sphygmography with a distended catheter.

The Distended Catheter.—Inhalation anaesthesia is contraindicated in acute obstruction. Apart from its toxic effects, there is the danger of inhalation of vomit. Chloroform and other Schmidt's preparations in the subcutaneous occurrence of paralytic shock. Gas and oxygen is lost from the obstruction.

Typical anaesthesia is used for these cases, and the only contraindication is a low blood pressure. Vomiting is much less likely to occur and the danger of inhalation of vomit is thus obviated, with and finally it shows the sphygmogram out of action and thus by withdrawing posterior rapidly removes the intestinal cramps when caused at the obstruction.

In operations such as anastomosis or enterostomy, best anaesthesia is all that is necessary. In operations for obstruction the anaesthetic should be under the principal leadership of the operator, for a distended caecum points to an obstruction lower down and an empty contracted caecum in the reverse place to start investigation for the cause of obstruction at the small gut. The contracted small gut shows the caecum may be quickly and easily inflated up to the site of the obstruction, thus saving much time and unnecessary gas handling of coils of distended intestine.

Research III did not find a main effect for gender should be needed to compare both men and women in the same manner as in research I.

By comparing measured drainage (and so, erosion) to model results in the test problem, the method of drainage of the catch is directly compared to model loss of soil from

In the column *gargouille* it runs, except in the case of volutes, and, here the last symbol is to bring the two ends to the surface after reaching and to mark the hole taken.

In the cabin, except in extreme cases, the operators will usually finish up with a colostomy. A colostomy is generally much suitable but if the person wanting the operation is irremediably ill, a colostomy near the stomach should be done at a short interval, second to, in order to avoid damage to the skin from the liquid contents of the caecum.

1000

(1) Early diagnosis when the signs and symptoms may be slight, is of primary importance, as intestinal obstruction, when treated surgically, is almost invariably fatal.

(2) There is an urgent necessity to replace the funds and essential vehicles lost through the by numerous transformers and to decommission the damaged stations be equipped with a dedicated engine.

(3) Internal migration would appear to be much more symmetric, and with the increase in recent years than formerly, this may be due in a large measure to the much greater number of abdominal operations performed now, and hence the possibility of the formation of bands and adhesions.

TUESDAY, JULY 11, 1995

[illegible]

In the treatment of diabetes, either with or without insulin, these general principles must be followed:—

(1) The patient must be given a diet which is adequate in caloric value to enable him to carry on a normal and active life and put some weight on him.

(D) His dad must be an idiot and is stupid in matters of problems such as he does and his dad is also not having fun.

(4) The diet must be so arranged that it conforms as closely as possible with that of normal individuals.

In regards the last of these principles it is obvious that the nature of the moral obligations of individuals varies with reality depending on their age, sex,

[illegible]

and comparison. Infants and children require diets of a relatively high caloric value to allow for growth as well as for the normal metabolic requirements. Women need about 18 per cent. fewer calories than do men. With increasing age, caloric requirements decrease. Diets engaged in heavy manual work require larger diets than those in sedentary occupations. The terms "basal" and "maintenance" diets are often used. A "basal" diet is one which will provide an adequate number of calories for a person of average size on a "maintenance" diet is one containing sufficient calories for an ordinary active life. A "maintenance" diet contains about 30 per cent. more calories than a "basal" diet. Many methods have been devised for the calculation of "basal" diets in individuals of varying age, sex, height and weight. The basal caloric requirement varies more with the surface area of the body than with the actual height or weight.

From a practical point of view, however, the maintenance diet is of more importance, as the diabetic must be able to lead a life of unhampered activity. The adult patient it is generally believed to allow 30 calories to each pound of body weight. Thus between the ages of 20 and 30 the following figures may be regarded as adequate for an ordinary sedentary life:—

Weight in pounds	Caloric requirements
11	1,000
11	1,100
11	1,200

For female patients, 3 to 10 per cent. of the calories may be deducted.

Needless to say, the nutritional state of the patient will have an important bearing on the caloric content of the diet. If the patient be emaciated the diet must be relatively high, whereas in a diabetic already much overweight a lower diet is advisable.

As a check upon the caloric value of the diet a careful record of the patient's weight should be kept from week to week. A steady and sustained increase in weight, except in emaciated persons is most undesirable, while a steady loss of weight indicates in some cases that the diet is too low.

The second general principle is that the patient should be given a diet on which he does not develop ketosis. Fortunately, with the aid of insulin it is now possible to allow more diabetic patients a carbohydrate ration in the quantity of fat in the diet to prevent the formation of ketone bodies. There has been much discussion of opinion as to what amount of carbohydrate should be allowed. In the early days of insulin treatment carbohydrate was often restricted to 50 gms a day, or even less. Undoubtedly this amount is quite inadequate, and a diet containing so small an allowance of carbohydrate is not only unpleasant, but renders the patient liable to ketosis. At the present time it is very seldom that a patient, when taking insulin, is allowed less than 100 gms. of carbohydrate a day. A number of physicians, notably Hahnemann, prefer to give a far higher ration of carbohydrate. Even as much as 250 gms. per diem is sometimes ordered.

If the diet is prolonged beyond two years—the treatment (properly managed) is successful, then—(1) high carbohydrate diets must be abandoned by a doctor responsible for as much as that the diet becomes extremely unsatisfiable. In this all examples. Suppose that the patient is to have a diet with a total caloric value of 2,000 calories—and he uses 450 gms. of carbohydrate then produces 1,260 calories, protein (180 gms.) produces 900 calories. Thus there are only 400 calories left to be provided by fat, and as 1 gm. of fat produces 9 calories, the total available fat would be only just over 44 gms.

When it is remembered that all meat, most fish, eggs, and milk contain considerable amounts of fat, it is obvious that no diet is a restriction of fat is impossible. Moreover, the ingestion of large amounts of carbohydrate produces an insensible desire for a proportionate amount of fat. The ultimate result is a really high carbohydrate diet in that the patient takes not only his carbohydrate, but in addition, a large amount of fat. This means that he is taking a diet containing far more calories than it should, body weight increases and he becomes obese—the worst thing that can befall a diabetic.

Fortunately a middle course is available. A diet containing between 150 and 160 gms. of carbohydrate allows a reasonable intake of starch-containing foods such as cereal and potatoes, and there is no necessity for the patient to deny himself fat-containing foods such as butter and hard cheese, eggs, butter and cream.

The amount of protein in the diet must be adequate to replace the constant breakdown of tissue protein. On the average this should be 75 which about 1 gm. of protein to each kilo of body weight. This would allow about 75 gms. of protein daily for an adult of average build. Probably no harm is done if this is increased somewhat, especially in those leading active and energetic lives, but as we now should extend 160 gms. High protein diets tend to render vitalization with much difficulty. With children and adolescents far larger amounts of protein are required to allow for growth.

The third general principle in the construction of a diabetic diet is that it should conform as closely as possible to the type of diet eaten by healthy persons. This not only saves expense and trouble on the household, but it enables a diabetic to play his part in social life and prevents the development of an extremely complex. Even a severe diabetic, with adequate insulin no longer needs to take special diabetic foods.

Seeing in mind what has been said above, we may now proceed to consider the treatment of patients suffering from diabetes. However obvious the suggestion may be, it is most important to make a thorough physical examination before the institution of treatment. One may avoid the presence of other pathological conditions such as tuberculosis, urticaria, nephrosis and heart disease, diastolic state or gall-stones. Head, eyes, or teeth or throat, all of which have a bearing in the treatment of the diabetes.

should be kept upon regularly. Special therapy and surgery must be reserved. Although it is often possible to prevent a coma, it may be possible to save diabetic who suffers especially in the intermediate years in the most from a previously normal and useful life for an indefinite period.

Insulin Treatment

On finding that insulin is necessary the best plan is to start with a regimen of 2 units each, one given half an hour before breakfast and the second half an hour before supper. The patient is put on an approximate 1000 kcal diet. No 2 test diet is usually adequate for the average adult. If the patient is under observation in a hospital or nursing home, it is able to increase the insulin by daily additions of 5 units, the first increase being made in the morning. Thus on the first day the patient takes 5 units morning and evening, on the second day, 10 units in the morning and 5 in the evening, on the third day 10 units morning and evening, and on the fourth day 15 units in the morning and 10 units evening. If the patient is under treatment at home it is able to increase the dosage more gradually.

When an uncontrolled diabetes is brought under the influence of insulin there is often a sudden attention in the evening, which may render feeding impossible. This is due to reflexive changes in the liver resulting from changes in the water balance of the body. The same rapidly occurs, though less often, may be necessary.

When stabilization on insulin is being carried out the urine should be tested four times a day and the results carefully checked. Increases in insulin are controlled mainly by the urinary sugar. When this disappears or becomes very small or absent the dose of insulin should be increased very gradually. The blood-sugar is of little value while the urine contains sugar but when this has disappeared, estimations of blood sugar will help in control treatment. The blood should be drawn either shortly before the morning or evening injection of insulin, as at these times the readings are likely to be at their maximum. If the blood-sugar is found to be above 200 mgm per cent. although there is no glycosuria, the patient has a high renal threshold, and the doses of insulin can be gradually increased till further oral more normal levels of blood sugar are obtained.

HYPERGLYCEMIC REACTIONS

When insulin lowers the blood sugar below about 80 to 70 mgm per cent., characteristic symptoms are produced which are usually termed hypoglycemia, or insulin reactions. The blood sugar level at which these signs occur considerably in different patients. The usual symptoms of a reaction are hunger, sweating and a sensation of hunger at a rising feeling in the epigastrium. The patient may become confused, excited, noisy, tremulous or quivering. Sometimes acute shock-like is clearly manifested and in some cases hypoglycemic patients have even been treated as being unconscious. In more advanced hypoglycemia there may be headache, paralysis, numbness and coma. Reactions are most likely to occur the

or have come from the capital of insulin, but eventually they will be obtained in sufficient quantities.

The insulin which is likely to produce hypoglycemia is a potent insulin, such as the following:

- (1) Insulin in excessing the dose or the method of use of double or triple-strength insulin.
- (2) Increase in carbohydrate tolerance after abstinence.
- (3) The recovery from diabetes in some, both of which conditions produce a temporary decrease of carbohydrate tolerance.
- (4) Delay in treatment of a case often an agonist of insulin.
- (5) Serious intestinal disturbances which interfere with the absorption of insulin.
- (6) Unmistaken physical exercise, especially if prolonged. This is probably due to depletion of the stores of glycogen in the liver.

The treatment of hypoglycemia in some of the patient involves the suppression of the symptoms in the early stages. Every diabetic taking insulin should carry with him a few lumps of sugar as an insurance against emergency. One or two lumps, preferably taken with a little water, will rapidly cut short a reaction. In more severe cases where the patient is unconscious, 10 gram of glucose should be given intravenously or about 20 g. of water or a stomach tube may be passed and 50 gram of glucose dissolved in a few ounces of water introduced. Hypodermic injection of 1 to 2 ounces of 1 in 1,000 solution of adrenalin or 1 c.c. of pancreas will also usually restore consciousness by increasing glycogen in the liver and thereby thus raising the level of blood sugar.

The occurrence of hypoglycemic reactions in a patient undergoing such treatment is usually usually, evidence that the dose of insulin is too high. Unless careful dose should be given, but insulin should not be completely omitted. Special caution should be exercised, when insulin is used in elderly diabetes to avoid reactions. This is most important in patients with degenerated heart muscle as a severe reaction may cause anginal attacks or even sudden death. Young children and very uncorrected diabetes are specially prone to hypoglycemia, and in these instances no insulin change should be very carefully graduated. In such cases of diabetes are readily available for blood-sugar determinations, these are helpful in checking the insulin treatment to judge the effect of insulin.

EDUCATION OF THE DIABETIC PATIENT

If a diabetic patient is to be treated satisfactorily it is essential to obtain his intelligent cooperation or at any rate that of his relatives. If the patient is to adhere to his diet he must know the reasons of diabetes and it is equally important that he should become adept in testing his urine, and, if necessary, giving himself insulin.

For the control of diabetes, treatment especially while the patient is living is difficult on insulin, the urine needs to be tested at least four times

fully. This is not done, since convenience, and economy of time, chiefly in the patient himself, controls the method of treatment and therefore in the beginning of treatment the patient is told he taught to use the diet. The diet relative to the carbohydrate content is not given the color of the solution it is easy to judge roughly the amount of sugar present, provided a standardized technique is used. If the patient is taking under the physician should be given by the patient himself from the beginning. As regards diet, all foods except the 5 per cent vegetable group should be weighed until the patient learns to judge the size of a given portion with reasonable accuracy. In order to avoid controversy as to the patient must have a knowledge of the amount of carbohydrates in common and as regards protein, carbohydrate and fat, so that he may be able to say he diet.

All vegetables and fruits contain carbohydrate, and they are classified as follows according to the percentage of carbohydrate present:—

5 per cent Vegetables and Fruits—Orange fruit, cabbage, brussels sprouts, spinach, asparagus, marrow, celery, tomatoes, watercress, leeks, Brussels sprouts, cauliflower, mushrooms, rhubarb, sweet corn, French beans.

10 per cent Vegetables and Fruits—Orange, strawberries, black currants, gooseberries, blackberries, peaches, lemons, leeks, carrot, corn.

15 per cent Vegetables and Fruits—Plum, apricot, apple, pear, cherries, raspberries, green peas, artichokes, parsnips.

20 per cent Vegetables and Fruits—Bananas, green potatoes, baked beans, baked oat, baked macaroni.

Other sources of carbohydrate in the diet are: (1) Cereals, which contain about 60 per cent of carbohydrate when weighed dry. (2) Bread, which whether whole or brown, contains approximately 50 per cent of carbohydrate. (3) Milk.

The 5 per cent group of green vegetables and fruits contains so little carbohydrate that they may be taken in unrestricted amount even by severe diabetics. All other groups must be taken only in such amount that the total carbohydrate eaten is not exceeded.

Quite apart from the regulation of the amount of carbohydrate in the diet, it is important that the total caloric value shall not be increased by too large amounts of protein and fat. If these be unrestricted, not only will the patient become obese, but he is likely to develop ketosis. Most of the apocalypses lie on the market are unfeasible, as they contain a very high proportion of protein. In addition they are very expensive and often unpalatable. An exception may be made for a small amount of vegetable macaroni or spaghetti, should the patient feel he needs it.

Amount of Dieting

To feed a diabetic patient is to impose an unnecessary hardship on the diabetes but an exemption is anything except very limited amounts

should be 1.7 with 100 gm. solids, but readily develop staphylococcal infection. They even develop *Ascaris* infestation, and if a considerable amount be taken it adds appreciably to the total calories of the diet. A large starchy portion approximately 150 calories. Many diabetes sufferers tolerate much sugar, particularly lactose, but dark starchy and heavy beans or wheat flour should be avoided completely, but light wheat, dry beans and ordinary butter have not relatively important.

DIABETES IN CHILDHOOD AND OLD AGE

Diabetes in Infants and Children.—Fortunately, the majority of diabetes develop the disease in middle life or later, but the diabetic child presents a difficult problem. Usually though not invariably, diabetes starting before the age of 20 is severe in type, and before the discovery of insulin few child diabetes survived more than two years. Fortunately with adequate treatment diabetic children now grow up normal in stature, physique, and intellect.

The diabetic infant or child has to make good not only the calories or calories but otherwise must also be made for the fact that it has got to grow. Consequently more liberal diets are necessary than in the case of adults. Thus a specially low of the allowance of protein. Under the age of 5 years 2 to 4 gm. of protein must be given per lb. of body weight, from 5 to 10 years 3 to 4 gm. per lb., and between 10 and adult life, 2 gm.

The total calories of the diet must be no higher than in the case of adults and range from 180 calories per lb. in early infancy to about 30 at the age of 15.

Children are more liable to develop ketosis than are adults, particularly when they develop any infection. Consequently, a relatively large caloric hydrocarbon intake should be allowed. This should be about 180 gm. at age 5, 150 gm. at 10 and about 100 gm. at 15. With these amounts of carbohydrates there is little risk of ketosis.

In diabetic children it is most important that infections such as the spots, fever, tonsillitis, or even colds should be treated seriously. Any kind of infection lowers the carbohydrate tolerance. The parent should be kept on hand, take plenty of fluids with an ample supply of carbohydrates, and if necessary, take increased doses of insulin to control glycaemia. If an infection be neglected, the child is very liable to go on to coma, or at any rate to suffer a permanent diabetes or carbohydrate intolerance.

Children are more prone than are adults to develop hypoglycaemic reactions, which are often induced by increased activity and physical exertion. The symptoms are often psychical, and the child may be thought to be merely naughty or perverse. More severe reactions with convulsions have sometimes been recorded in epilepsy.

Insulin is almost invariably necessary in diabetic children. Its use may at a first given at least three, or perhaps four, times daily, but when the

child is of school age, if possible the number of injections should be reduced to two. It is often difficult to balance the diet and insulin. The insulin suggested by Vinograd is often reliable in such cases. The morning dose of insulin is divided into two portions, roughly equalized and given orally. The smaller dose given orally is injected one hour before the morning breakfast, and breakfast is eaten half an hour after the second dose. The subcutaneous of the morning dose often seems to keep the blood sugar within normal limits after breakfast, and further prevents hypoglycemic reactions later in the day.

Diabetes in Elderly Patients, and Diabetic Coma.—Diabetes developing after the age of 50 is usually mild. There is frequently considerable arteriosclerosis and associated degenerative changes; diabetes are usually a greater danger than the diabetes. Often a quiescent condition of carbohydrate metabolism, and insulin is only necessary for infrequent and emergency use. Considerable insulin must be administered to bring insulin to elderly patients, particularly if there is any evidence of myocarditis, as a severe reaction is likely to potentiate rapid attacks or even sudden death.

Elderly diabetes are especially prone to develop gangrene of the lower extremities. This may become complicated in very rare before the age of 50 and except in the very aged, it seldom is seen until five or more years after the diagnosis of diabetes has been made. Diabetic gangrene is always associated with arteriosclerosis of the vessels, but this is found to occur at an earlier age in diabetics than in non-diabetic patients.

There are two factors which lead to gangrene in diabetes: (1) impairment of the blood supply owing to arteriosclerosis; (2) diminished resistance of diabetic tissues to trauma and infection. The extent to which the circulatory factor is operative may be judged from the presence or absence of pulsation in the dorsalis pedis and posterior tibial arteries. Pain is often very severe, and the gangrene may be most painful.

The decision as to whether amputation is necessary is often a very difficult one. If the gangrene is spreading rapidly, and no arterial pulsation can be felt, immediate amputation is required. When however, there is much infection of the tissues and particularly when undrained pus is present, more conservative measures are possible. Collection of pus should be drained and the wound treated with Dakin's or other antiseptic solutions. It is frequently found that healing may take place in a few months particularly if the diabetes is controlled with insulin. Persistent and severe pain associated with gangrene is an indication for early amputation.

THE TREATMENT OF DIABETIC COMA

Before starting active treatment with insulin it is essential that the diagnosis should be settled, especially when coma occurs in patients who are taking insulin. If hypoglycemia be mistaken for diabetic coma, the results are likely to be disastrous. Fortunately, there is seldom any real

(4) *Coughing*—the sputum should be given as early as possible, and (5) *Stool* when they started subsequently.

(6) *Convulsory Fit*—The patient must be kept warm and such a stimulant such as Chininase or valonia is necessary be given. After recovery from coma, he should be kept as cool as a cork.

(7) *Infection and Septic*—Coma is frequently induced by infection and sepsis. A careful physical examination should be made and if there be any collection of undrained pus it should be dealt with surgically at the earliest possible moment.

Patients in diabetic coma should be under continuous medical observation as the condition may change from hour to hour. Urine should be obtained for substantiation of accuracy every three hours, and if the results of blood sugar are readily available, these are helpful in deciding on the subsequent dosage of insulin. The total amount of insulin given during the first twenty-four hours of treatment varies from about 150 units to 400 units. When no doubt is as to the use of too much insulin than too little insulin. For several days after coma the diet should consist mainly of carbohydrates. Fat should be reduced to a minimum.

MANAGEMENT OF DIABETES

While insulin does not appear to have a permanently decreased the incidence of ketonuria among diabetics, it has certainly much improved what used to be a very grave prognosis. Undoubtedly, prompt diagnosis is rarely diagnosed in diabetic patients, as its early symptoms are often attributed to the diabetes. Intervention in a diabetic should always become a measure of ketonuria reduction and calls for 1/2 cup of the blood specimen every two and a temperature chart.

A diabetic with phlebotomy should always take insulin and should be kept on a high calorie diet. The carbohydrates should be not less than 150 gram a day, and an ample supply of milk is advisable as well as cod liver oil.

PROGNOSIS AND CAUTIONS

Before the discovery of insulin pregnancy was not except as very mild diabetes and in most severe cases miscarriage was invariably present. With effective insulin treatment pregnancy has become not uncommon.

Most pregnant diabetes show a definite loss of carbohydrate tolerance especially from the sixth month until delivery. This usually necessitates an increase in insulin which may be as great as 50 per cent. Fetal death is very common during the later months of pregnancy unless the mother's urine and blood sugar are kept within normal limits. Pregnancy produces an increased liability to ketosis, and therefore a relatively high carbohydrate diet is required. The carbohydrates should be not less than 150 gram per day, and the protein allowance should be at least 1 1/2 gram per kilo of body weight. The blood sugar should not be allowed to exceed 6 1/2 per cent. Termination of pregnancy is now very rarely necessary. Indeed the risk

In this position it is recommended that all planning the program of treatment be done—

It must be realized that the presence of a continuing diabetes in the course of a pregnant woman does not necessarily indicate that she is suffering from diabetes. Caution should always be prepared to exclude the possibility of toxemia in the weeks during the later stages of pregnancy. Also a blood sugar tolerance curve is called for in cases where the patient is not definitely diabetic. During pregnancy a low renal threshold for glucose is not at all uncommon and considerable amounts of sugar may be passed even though the blood sugar is within normal limits. Excretion of such an excess does nothing but harm. Every pregnant patient who develops glycosuria should be thoroughly investigated as to its not uncommon for a mild or potential diabetes to develop obvious symptoms for the first time during pregnancy.

OPERATIONS IN DIABETES

With the aid of insulin, surgical operations on diabetes have become possible which in pre-insulin days would have proved inevitably fatal. No diabetes, however mild, should undergo a surgical operation without being put on insulin. If the operation is not an emergency, the patient should be stabilized on insulin on a high carbohydrate diet of about 150 grams per day or even more, with a low fat content. For the twenty-four hours immediately preceding operations he should take enough pure white glucose, estimated grain and loaf sugar. Three hours before operation he should take enough pure white 50 grains of glucose, which should be administered half an hour after 20 units of insulin.

If the operation be an urgent one it should not be delayed owing to the diabetes for more than a few hours. If the patient is already taking insulin the usual dose should be doubled and given at the earliest possible moment. Glucose should be given by mouth or rectum. A further specimen of urine should be obtained if possible, after two hours and if this contains sugar and ketones, further insulin should be repeated. If not necessary, insulin is usually responsible for diabetic glycosuria before a post-operative but the control of insulin is most important. After operation the patient should be given rectal and auxiliary insulin, and fluids can be taken by mouth. If possible 100 grams of glucose should be taken daily for some days following operation. Insulin should be given as usual but frequently repeated doses. The actual amount to be determined on the results of frequent urine and blood sugar examinations.

Local or spinal anesthesia should be employed if possible, but if a general anesthetic is necessary, gas and oxygen is to be preferred. Ether is less satisfactory owing to liability to post-operative vomiting, and chloroform should never be used.

ERRORS IN THE LEFT COTYLON

BY MARION C. CROFT, M.D., AND J. C. CROFT, M.D.

Great errors in relations of the anal gut loops may be met in (1) the first stage of development is generally admitted. But what is not so fully appreciated is the fact that later forms of this abnormality may greatly complicate what in the ordinary course of events is a simple technical procedure. The type of abnormality which is most likely to be met with in cases, many surgical practices in that due to error of relations of the anal gut loop, particularly disarrangements of the third or distal stage which results in the sub-hepatic and right lumbar regions. To deal satisfactorily with cases of this type would help is obtained from a study of the development of the alimentary canal and an understanding of the abnormal anatomy which results from these embryological errors. The anal-gut, supplied by the superior mesenteric artery, extends from the umbilicus of T₁₂ to the



Fig. 1. Midgut in Embryonic Stage

region of the umbilicus with the left side of the mesenteric vein. In the early stage of its development the midgut assumes the form of a U shaped loop with a medial extremity. It is suspended by the dorsal mesentery to which, when two by two, is the superior mesenteric artery. The developing organ appears as a small diverticulum outgrowth on the medial back of the loop. During the fifth week the mesenteric in the case of the lower lobe forms the loop out of the abdomen into the sub-hepatic cord. Between the fifth and tenth weeks, while in the sub-hepatic cord, the whole loop rotates and descends around the superior mesenteric artery as an axis. During the second stage of rotation, about the tenth week, the loop returns to the abdomen, the mesentery has overlying fold, passes to the left side behind the superior mesenteric

artery so that the small posterior segment of anal gut comes to be farther to the left and posterior to the urinary, and the splenic flexure and descending colon become attached on the left side of the anal tube. The dorsal lymphatic vessels in the abdomen and less in front of the mesenteric artery with the celiac bed immediately below the liver, and the transverse colon passes to the left transversely across the abdomen. During the third stage the ascending colon is formed by the downward growth of mesone from the pit-hepate, to its ileal portion. The extreme apex of the colon elongates



Fig. 1. (B) normal stage of mesone (C) elongated form of the mesone

with this appendix. Later localized mesone growth of the latter stage of anal with displaces the appendix to its ileal position. A process of further mesone development whereby mesone ascending and descending, colon, from these mesenteries and becomes finally applied to the posterior abdominal wall. The early fixation tends to one descent of the mesone which may remain sub hepate, or posterior or only fixed to its at the hepatic region. Different fixations tend to one stable mesone which tends to produce into the pelvis. Failure in some stage of the normal development just alluded to is source of potential danger to the patient and may result in replacement compress for the mesone which is called upon to deal with its mesone abdomen in a case presenting this abnormal anatomy. The type of abnormality encountered in operation depends on the stage of development at which the failure occurred. If there is an entire failure of rotation the small intestine lies to the right of the mid-line, the cecum and colon are on the left, and the ileum enters the mesone on its right side, and as the

mesenteric attachment does not elongate there is a considerable liability to reflux.

In reversed rotation, where the dorsal limb remains fixed, the caecum and colon pass behind the mesenteric artery and the duodenum lies in front of the artery. This situation may arise through compression of the transverse colon. Other causes of rotation result in the small intestine being in place but on the right side of the duodenum and the caecum rotated up to normal



FIG. 1. Jejunum (J), duodenum (D) and caecum.

position. Events in the third or fourth stage result in non-fixation of the caecum or its mobile mesentery. In the short period of time which I have encountered, two cases presenting the abnormal situation in which an opening in the abdomen by the classical lateral incision, not usual incision was found on right side of the abdomen. In each case the lateral incision was made and attempts to follow the small intestine to the caecum in vain, indicated. It comes over the back and a hole is followed by paralytic ileus in post-operative position. In these cases the terminal

right, each of the 'highlights' is shown to be a pathogenesis. The authors, paying tribute to the above, conclude 'Each of the conditions referred to in



FIG. 1. A root canal filling, demonstrating a fracture.

the article. In these particular cases, it would seem, repeated attempts, and, at present, the radiographic method of investigation was inadequate. It proved to be of the greatest help.

TABLE 1. Cases of Syphilis from Vancouver, 1929-1932.

	1929	1930	1931	1932	Total	Ratio
Confirmed	1,324	473	504	578	2,879	1 to 115
Not confirmed	20	114	22	21	177	1 to 1,000
Total	1,344	587	526	600	3,057	
1929-1932	1,364	697	526	600	3,187	

	1929	1930	1931	1932	Total	Ratio
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1929-1932	1,364	697	526	600	3,187	

These two tables give some information as to the attempt to estimate of progress in these diseases.

Shown in the first period shows a percentage of 1 per cent, but there is a point of interest in the figures for this disease. Table 1 shows a marked increase in incidence in the years 1929 and 1932 apparently at the expense of cases of syphilis primary. This must appear to be due to the introduction of the Wassermann reaction as a routine in the serology of these diseases, and it would appear that prior to 1929 many cases were diagnosed as syphilis when they were, in fact, cases of chancre only. The year 1932 shows the greatest difference in this respect—an indication that the Wassermann reaction, used experimentally in 1929, had become more generally used in 1932. The ratio of primary syphilis to chancre in 1929 was as 1 to 175; the ratio in 1932 was as 1 to 150. This is a very comparable ratio when it is remembered that the diagnosis in 1929 is still further assisted by examination by dark ground illumination for the causative organism. The role the Wassermann reaction played in showing the ratio of chancre and primary syphilis in 1929 is indicated in a report by Surgeon-General-General Sir Percy Kenneth Smith, then a Fleet Surgeon, who, writing on 'Serum Diagnosis of Syphilis in the Fleet' at the Navy Day 1929, stated: 'Practically all cases of primary infection referred to Harker whether referred for chancre or syphilis in early stages in which any doubt existed as to the nature of the condition formed'.

In the bulk of the cases, the results positively giving the method of treatment employed, the speaking of the reaction being fully accepted by the clinician under whose care the case was.

This statement necessarily shows a rather state of affairs which makes accurate comparison of the two periods under review less fully indicative for the first, Barrett Smith indicates that such speak, from 1929 as was then in evidence (1932) was satisfied on doubtful cases until the case was proved at a later date by the development of a positive

Woundless lesions have been applied to mastitis lesions more likely to develop in these early days.

However, using the above figures as they stand the percentage cure for the first period (1.45 per cent) can be compared with the percentage for the second period (30.44 per cent). This represents a reduction of approximately 40 per cent which must be regarded as an achievement in preventive medicine.

Days sickness from Chlamydia.—The first period shows 10.4 days sickness per case as against 14.1 days in the second period. This represents a 10 per cent improvement in treatment.

For chlamydia in prevention, diagnosis and in treatment something has been achieved.

Applique.—Here the total expenses for both periods must be taken, for the recording of cases under this heading was changed in the two periods. The total charge for applique in the first period was \$10,040 more or 199 per cent of the total force, with 34.35 days sickness per case; the total charge for applique in the second period was \$16,210 or 299 per cent of the total force with 36.61 days sickness per case.

Here there is a percentage cost improvement of 30 per cent, with nearly 18 per cent improvement in treatment as measured by days sickness per case. But the improvement in such costs matched those shown by the figures indicate for it is extremely rare to see a case of applique now with any secondary signs or symptoms, during a recent period of three years at R.N. Hospital, Chatham, only one such case occurred and this case was shown as a cure.

With regard to the treatment of applique there is the evidence of the absence of the disease in the secondary stage and the fact that cures of applique have failed, are considerably less than those of applique have cured. An indication that the treatment of cases as first noted is so efficient that no further treatment on the sick list is required. The total of applique later noted apparently largely those cases submitted to R.N. Hospital for operation of course of continuous therapy.

The various manifestations of applique has been shown and a marked but an extremely marked decrease. In the two periods in present study consideration it is of course impossible to offer comparisons of cases which develop various systemic manifestations, for to any case must be allowed to pass before the course of cases now under treatment can be estimated in the immediate.

It is not without effort one may take some credit for the marked improvement in the diagnosis and treatment of applique.

The Future.—All credit must go to British for his discovery of both and subsequent manifestations, but the use of drugs of this nature has been carefully and experimentally brought into general use in the Navy by medical officers and such results kept that the optimum value is obtained from treatment.

Prevention—Here it may be claimed that reports of increasing cases have been obtained by means of notifications given by medical officers and by advice to parents. Further improvement is possible and is likely.

Days Sickness—The seasonal group of days is the most important cause in the dissemination of loss of time from typhoid, but in addition it is insisted that the early recognition, and the early reporting of typhoid signs and symptoms has a considerable bearing and these two causes have been decreased by means of advice to naval personnel.

Days Sickness—1906 to 1913 shows a total of 24,608 cases which represent 0.5 per cent. of the total force.

For 1909 to 1913 period the total cases are 25,176 which represent 0.25 per cent. of the total force.

Here we have a marked improvement, but it is an improvement in preventing sickness only. As far as the Navy is concerned it is an achievement, but some work must go to the naval authorities at home in diminishing sources of infection.

Days Sickness in period 1906 to 1909 = 19,541 days per case, and in period 1909 to 1913 = 19,734 days per case.

These figures are not truly comparable, for in the second period we have microscope examinations to supplement other investigations as to cause of the disease. But as none of the three were dissensions in the management of treatment. On the other hand we very seldom see, in older stages or in pronounced cases of sickness which used to be so common. Hence it may be inferred that if we have not shortened the time of treatment, we have improved the value of our treatment, and by diminishing the complications and sequelae in that disease have, in fact, markedly diminished the days sickness per case. There appears to be room for research and improvement in this condition in its early stage.

EPIDEMIOLOGICAL

A comparison of the incidence of tropical diseases in the two periods shows differences in obtaining a true reading from statistical figures. However something may be learned from them. The group of fever—typhoid fever and paratyphoid. These are not merely tropical diseases, but may be conveniently included here as the source of infection is common abroad and rare at home, so that the majority of cases occur on foreign stations. In the years 1909 to 1913 5 cases occurred on Home Station, 3 in Atlantic Fleet which were almost insignificant on Foreign Station.

The percentage cases of entire group 1906 to 1913 = 0.11 per cent. of the total force, 1909 to 1913 = 0.04 per cent. of the total force.

Here we have a marked improvement which is very largely due to the systematic use of protective vaccine and which is supplied in the routine hygienic instructions given to officers and ships companies and by prohibition of admission of dangerous individuals on board ships. In the first period

1907, non-hospitalized. Hence 1912 was the first year it appeared in the annual period hospital and non-hospitalized are very rare diseases in Hong Kong.

In statistical returns of the entire group as far tropical diseases proper it would probably be more exact to include the percentage of incidence among the personnel serving abroad.

Other Tropical Diseases

Many of the disease headings are not so strictly comparable: the cause of a microscope to ships and the routine employment of this has led to some definite diagnoses in tropical diseases. Hence in dealing with a well-known entity such as malaria, it is to be borne in mind that cases now diagnosed as malaria on blood examination were in the first period diagnosed largely on clinical evidence only.

Malaria figures are as follows:—

Year	1912	1913	1914	1915	1916	Total cases	Percentage	Percentage service
1912	101	700	70	6,7	2,770	5,117	100	
1913	79	100	10	1	1	Total 190	100	Percentage service
1914	100	7,7	100	7,9	1,07	100,100	100	

This does not show that malarial improvement which was hoped for but which the Navy is concerned the nature of infection is practically completely in hands other than ours in that the dissemination of the malarial is not under the control of naval medical officers as a rule. Taken the Annual Royal Navy Medical Club Census in 1914 the First Lord of the Admiralty Sir William Lyster Montagu quoted such results show no malarial in Hongkong and suggested that it was necessary way at least as that done at Portout. (see report of Annual Census of the Royal Navy Medical Club published in the *Journal of the Royal Naval Medical Service*, 1914, page 300). The figures however, are better than they appear for from the personnel serving abroad 1912 to 1915 1.75 per cent developed malarial, and from the number serving abroad 1915 to 1916 2.75 developed the disease.

Infected Force—The first period 1905 to 1910 includes that period when the nature of the disease and the source of infection were discovered. Hence the two periods cannot be fairly compared, though it must be noted that naval medical officers were closely associated with the investigations leading to this discovery. Our figures are as follows, and for the purposes we are taking the total personnel serving in the Mediterranean during the two periods. The very substantial case constantly elsewhere will not appear only after our statistical figures.

	14	147	148	149	150	Total cases	Total deaths	Deaths per cent	Deaths 1914-1918 per 100
Deaths	12,180	20,000	9,174	1,004	1,000		52,358		
Unkilled cases	100	10	0	0	0	110		0.09	0.10

	151	152	153	154	155	Total cases	Total deaths	Deaths per cent
Deaths	10,100	12,140	10,070	11,000	11,110		54,420	
Unkilled cases	10	0	0	0	0	10		0.09

In the former then, we start the phenomenal fall from 240 cases in 1900 to 39 cases in 1905, coincident with the substitution of treated milk for goats milk in ships and coastal districts in the Mediterranean. However, if we start the year 1906 and estimate the percentage cases for the four years 1907 to 1910 we get 2.17 cases per 100 of personnel. The five years 1911 to 1915 show a marked reduction over the latter figure and in spite of the fact that a larger—practically double—number of ships and ratings were exposed to potential infection during this period our percentage incidence is 0.86 per cent of personnel. We must, and incident from is completely excluded from the record of Malta, except the fact that some cases will occur, and the number will vary with the number of Maltese ratings employed and with the number of ratings from the British Isles who have married Maltese women or who otherwise live privately on shore. With statistics from them, apart from the vital advantages gained from the discovery of the causative organism and its nature, a definite improvement has been effected in case incidence by means of preventive medicine.

Quantity—Here our figures show very little improvement.

In 1906 to 1910 with 158,600 personnel stored we had 290 cases = 0.17 per cent.

In 1910 to 1915 with 171,360 personnel stored we had 373 cases = 0.13 per cent.

We cannot deduce from the statistical returns, the number of cases of scarlet or bacillary dysentery in the last periods.

There is room for investigation in connection with the conditions and as for the Naval Medical Service cannot be magnified in any definite improvement.

Figures for the increasing tropical diseases are not easily found from statistics, and the conclusions, but to some extent is changed that some person with similar conditions is difficult. The increasing diseases are

1. Medical Officer

stomach, and diarrhea, the bowels being opened as much as five or six times a day. The stools were watery, but contained no blood, mucus or mucus. There was slight weakness and tenderness in the left iliac region, but otherwise no physical signs. He continued about the same until the 23d, when the temperature rose above the normal range and the diarrhea generally ceased. For the next two or three days the temperature remained normal (the rectal temperature, however, persisting, but on the 26th it began to rise again). The next again complained of abdominal pain and slight tenderness. After passing for a day or two the temperature remained normal and he was back to duty. He was considerably wasted at the end of the illness. The attack was accompanied with a considerable amount of prostration and anorexia, which however went away after a couple of days. The next was examined on two or three occasions, but revealed nothing abnormal. Blood-stains were also taken, but no parasites of any sort were found. There seemed to be no evidence of enteropathy, but this could not be substantiated as my means of passing them was at hand.

Remarks.—The drugs seemed to have the slightest effect on the disease. Sulfonamide drugs did not appear to have a beneficial effect on the diarrheal symptoms, but also on the temperature. But also had very little effect on the course of the disease.

Case 2.—T. aged 36, soldier. This man came sick on September 2, 1939 at Warsaw. He complained of pain in the head and back and general weakness. Temperature was 99.5° F. Bowels had not been opened for twenty-eight hours. His body was covered with an extensive rash, the character of which was similar to Case 1. He was given a purge and put to bed. In six hours he complained of cough. There were no physical signs and no response. On the next day he complained of vague and flaking pains in the left hypochondrium and at umbilicus. The cough increased, but there were no physical signs. He was put on sal 12 gr. i. d. with very little effect. He continued to cough, the cough subsiding for a while and a week when he started to cough slightly. The cough continued troublesome throughout, but without physical signs. On the 14th, the temperature was a little lower in the right axillary region, but there was no other subsidence. Also that he continued to improve and was completely discharged on duty. At that time he was entirely abstinent, urine normal. There has been nothing on this case and the appetite after the first two days was quite good. The rash was persistent in some part of the body at times throughout.

Remarks.—This case was not attended with so much prostration as was Case 1, but in both cases the diarrheal symptoms, temperature and rash were very similar. Also the duration in both cases was a little over a fortnight.

In addition to the two cases above detailed there were two cases of fever on board of which the main time in which marked prostration was noted on the 14th. In these, however, the fever did not pass a definite period of time. There seemed to be something else present on which the patient began was gratified as between the upper the temperature still remained high.

In addition to this, the abdominal pain above mentioned persisted throughout the time and was present before the administration of any drug.

Early the whole of the ship's company at the time suffered more or less from weakness in some part of the body, mostly the legs. There were also somewhat more of temperature in motion were for an apparent time.

Deaths.—At the time there were recovered the ship was covered throughout the intercommodore Deck Stagnation. There was a patch of nearly exposed water 25 yards off the ship. The lower half being placed were also for pelting and several of the men were employed pelting them and doing other work in the immediate vicinity of the vessel. The ship's water supply was heated up and again hot drinking steamer was found. All food drinking was the ship was

surprisingly reported as follows: "no swelling about it then would lead us to suspect it of being the cause of the disease."

The liver has long been known as the Yangtze river rather than the source of Yangtze Yangtze, following lower and as on both sides seems to be known as to its pathology and treatment as merely a matter of expediency. As far as I have been able to gather there is no history of, although symptoms of the liver are greatly pulled down for a time and are then liable to other more common diseases. I have heard of one or two cases where the symptoms were confined to the liver, and there were definite physical signs greatly resembling phthisis. The main difference being, of course, that cutaneous lesions are absent, and the physical signs are very fleeting in character and extremely variable.

Cases have also come within my knowledge in which the stomach has been the main part to be affected causing very distressing symptoms of dyspepsia, vomiting, etc.

In the light of recent experience I am inclined to think that the symptoms may affect any part of the body both acute and sub. The symptoms in these I might easily be caused by or also describe due to general disease of the circulatory system.

From the number of men affected at the same time the disease seems to be of an infectious nature, and it seems to come very distinctly with freshly imported men.

The fact that the onset is of the various parts causes the symptoms to, I think, subsist, as they are for the most part on febrile and catarrhal. Therefore we must look for some cause for the liver and stomach. The disease is, as far as I know, entirely confined to the Yangtze river and is not mentioned in any literature.

No signs of the nature of or tropical helio (symptoms) (symptoms) (symptoms) which can be considered as practically a tropical condition, are observable in these two periods. Modern opinion places the disease as a tropical condition and with the introduction of the Yangtze it is diagnosed. It would appear now that the disease should be given a separate entry in the nomenclature table, instead of being of interest and value of all tropical diseases were grouped on a separate table, as in separate section of the present nomenclature table.

The cases seem to be considered as those usually included under the heading of infectious diseases, and that the members of nomenclature class.

TABLE I.

	1900	1901	1902	1903	1904	Total cases	Total cases
Cases	7	5	4	10	1	27/176	14
	107	100	100	100	100		
Cases	1	1	1	1	5	107/100	12

The state of affairs in connection with the disease shows little of interest. It is observed that in the period 1900 to 1905, 7 out of 14 cases occurred on Hainan and Amoy Islands. The remaining 7 occurring along

In the years 1928 to 1931 all the 12 cases occurred in the colonies—China.

It would appear that the figures during these two periods represent the likely occurrence of this disease while personnel were on Foreign Stations where the disease is always endemic.

Tuberculous Meningitis

	1928	1929	1930	1931	1932	Total Cases	Total Deaths	Mortality
Cases per 100,000 pop.	30	30	15.5	15	17			
Deaths per 100,000 pop.	50	50	25	25	28			
Deaths per 100,000 pop.	50	50	25	25	28			
Deaths per 100,000 pop.	50	50	25	25	28			
Deaths per 100,000 pop.	50	50	25	25	28			
Deaths per 100,000 pop.	50	50	25	25	28			
Total	300	300	155	150	170	1,075	1,075	100

	1928	1929	1930	1931	1932	Total Cases	Total Deaths	Mortality
Cases per 100,000 pop.	44	44	22	22	25			
Deaths per 100,000 pop.	73	73	37	37	42			
Deaths per 100,000 pop.	73	73	37	37	42			
Deaths per 100,000 pop.	73	73	37	37	42			
Deaths per 100,000 pop.	73	73	37	37	42			
Deaths per 100,000 pop.	73	73	37	37	42			
Total	440	440	220	220	250	1,570	1,570	100

These figures show practically the same state of affairs in the two periods. Yet the situation has changed considerably with the result that improvements in hygiene, minimizing the chance of infection, was offset by increased chance of infection by other means, the chief of which is due to increased transport facilities under ailer conditions. It is this results in more potential sources of infection. On the other hand measures of protective destruction, intensive investigations and isolation have more or less checked the spread of infection when introduced. It is difficult to bring evidence to bear that not more rapidly when it can be observed that increased facilities for transport may tend to allow personnel to become longer out of their ship and hence minimize crowding. The only evidence that appears is based on a statement made by Surgeon-General Johnson & P. Dwyer. In the Laboratory it is found that relatively generally decreases with the age of a culture. That is to say it requires a smaller number of viable organisms to infect an animal from a culture twenty-four hours old than from the same culture when thirty-eight hours old (Journal of the Royal Naval Medical Service, 1934, p. 28).

If, then, in the second period 1928 to 1931 the number of infections are more numerous, but the precautions against the spread of infection in the Navy are better, then the cases in the first period should be more severe than in the second period. 1928 to 1931 on the assumption that personnel

showed characteristic eruptions on about four quarters of the body (erythema multiforme?) of old cultures. The isolated personnel, then, are largely only those withdrawn from old cultures. Is this correct?

In our period, 1918 to 1923, for the disease we are considering there were 17 deaths and 140 discharges from the service. In the second period, 1923 to 1934, there were no deaths and 140 discharges only.

The cases were those of greater severity in the first period, as there is lack of anything new in the way of treatment.

Major Eruptions, Infections

A difficulty arises in determining the kinds of conditions under the heading, for the intention is to investigate those conditions which are passed from one individual to another by direct infection, and hence pneumonia immediately suggests itself. This condition, however, should not come under this heading for it is well known to be a sequel of other and various debilitating conditions, also, in the Service. It is common knowledge that an apparently healthy person will appear with the early symptoms of pneumonia, following heavy exposure to wind and weather, especially as a result of hard work. The predisposing cause in this condition then appears to be the most important detail in the examination, and it would seem that the potential infection is carried by many if not all healthy persons. Pneumonia is, however, started under the heading for convenience.

Rheumatism—acute rheumatic fever. If tonsillitis is dropped from infection, acute rheumatic fever must also be included.

A further difficulty presents itself in scarlatina.

In the first period there were noological headings of tonsillitis as an entity, and of scarlet fever.

In the second period, 1923 to 1933, tonsillitis remains an entity but scarlet fever is replaced by disease of mouth, palate, throat, pharynx. All these latter are included under the heading scarlet fever in the table for this period. Hence the disease in the period 1918 to 1933 is considerably over estimated.

Dysentery, during both periods the nosological term enteritis appears until 1923 when it is replaced, with the mouth and throat previously mentioned under the single heading of catarrhs are split up and referred under three headings—colicæ, enteric, bacillary enteritis and salmonella.

The disappearance of the term enteritis is surely regretted, for as the Service had a definite anxiety as to it described those cases of minor respiratory infection which did not justify their inclusion under the headings of influenza or pneumonia. It is true that other conditions were labelled "Catarrh." I have in mind the early stages of subacute, acute, and chronic catarrhs, and others, at the time, under-reported conditions but the same condition of enteritis results now. It does not appear reasonable

a slight but definite improvement which must be attributed to general improvement in hygiene at H. M. Ships and Dockyards and to the fact that ships on short leave perform transport business give greater opportunity for outdoor exercise and enjoyment. It is noted that while the total percentage of cases is reduced in the period 1929 to 1933, yet the total of outbreaks in the first period under the heading attributed to per cent cases is the second period, namely, common cold and bronchial catarrh 73 per cent cases, and that in each of these periods there were no deaths and no scrubbing from these causes. Hence the improvement is in the more serious cases, and it suggests itself that by cure of minor degrees of respiratory illness the economy of the more serious forms has been prevented.

Notes for treatment —

1929-1933

	Cases	Deaths	Deaths	Deaths
Influenza	49 000	114	11	1
Respiratory tract	5 424	2 47	1	1
Per cent cases	5,424	1 47	100 — 100	100

1933-1935

	Cases	Deaths	Deaths	Deaths
Influenza	11 000	114	11	1
Respiratory tract	100	21	1	1
Per cent cases	100	100	100 — 100	100

In the period 1929 to 1933 there is a very definite reduction in the incidence of cases under the above headings. Influenza shows a slight improvement in the death-rate. Respiratory tract shows the most marked improvement both in death-rate and in scrubbing rate. Per cent cases shows a higher percentage death-rate with a marked improvement in scrubbing rate.

It may be concluded then on a report of the diseases detailed under the heading of Minor Respiratory Diseases that the Admiralty has gained: (1) In the collection of the total percentage of cases. (2) In the fact that the reduction is in the more serious diseases. (3) As a result of (1), is designated loss by days sickness and in the amount in both hospitalizations and deaths.

Common cold, influenza, and bronchial catarrh. Number of cases returned under these headings shows an increase in the second period under groups and there is also indication that there is more in the increase in the incidence, indeed in spite of the absence of scrubbing and food scrubbing it would appear that this group is that in which the greatest saving of time and money could be effected.

FURIOUS THUNDERBOLT

The period 1896 to 1910 gave the following record —

1896	1897	1898	1899	1900	Total cases	Total cases	Total cases	Total cases
105	107	108	109	110	539	539	539	539

and period 1911 to 1920 is as follows —

1911	1912	1913	1914	1915	Total cases	Total cases	Total cases	Total cases
105	106	107	108	109	539	539	539	539

Here the figures in both periods are comparable not only for the whole of each period, but show practically the same incidence in each year of both periods. In other words there is no improvement in incidence. The death rate shows a slight improvement in the second period but this may be accounted for by the introduction of a new or improved, by the discovery of laboratory methods, and by the routine examination of sewage which have not reported with resultant better diagnosis.

If the possibility of infection by tubercle bacilli from contact with an infected person is excluded the Royal Navy gives less possible source of infection than obtain in civil life by the chief source of infection, with it so guarded that it can be considered negligible. Where it must with it not need the least such source is subject to inspection by naval health officers and the work itself is performed in hotel. The same case is increased in the case of work.

The next case is that personnel in the Royal Navy are examined medically before entry and while it is possible to exclude a person from of tuberculosis of the lungs, yet on other aspects the entry must be of good physique. It must be concluded that the source of infection is the Navy is from those cases who are infected with tubercle bacilli and it must be acknowledged that the environment in H.M. Ships is conducive to the spread of infection should such a situation ever become worse. The environmental conditions have been considerably improved with increase in living space in H.M. Ships with the continued introduction of improved methods of ventilation, with improvement in the arrangements so as to allow in time a revolution of air as is possible, and finally with repeated examinations of the air in living spaces under varying conditions. In spite of these improvements conditions do have from weather or other conditions, when the ventilation must be shut down or decreased and then such conditions will arise must be accepted as a necessary evil. Climate and Open by different methods, again that by the twentieth year of life 75 per cent of the population are affected by pulmonary tuberculosis but that in the great majority of instances the infection is latent or inactive and that progression takes place during only

analysis of the personnel of the health staff in hospital 1, which is the largest (commanding J. L. Pierce, F.R.C.P., has Medical Specialist in R.N. Respiratory Medicine) showed that the majority of cases of early pulmonary tuberculosis were diagnosable by means of x-ray examination long before a clinical diagnosis could be made with any degree of certainty, and it is in fact well-known that a diagnosis of pulmonary tuberculosis in the case of one individual in H.M. Ships implies that he must be surrounded throughout his life by a complete sphere of care in the life of the individual and such an sphere must only come on evidence that is humanly speaking incontrovertible. This leaves a loophole for sources of infection to be introduced in H.M. Ships, whereas as far as the Navy is concerned they can do the most harm.

It would appear possible that the main source of infection is the Navy's tightening up of a mass of latent infections under temporary, unavoidable emergency conditions, and that such a case in such conditions may give serious focus of exposure to those in the immediate environment. These two related have not only to deal with the source infection, but have to mean to do so in an environment which by lowering the resistance of the individual favours the attack of the organism.

The subject left at this point for the infection of this article is to estimate events and to determine if the Medical Branch of the Royal Navy has improved or reacted to the improvement of the health of the Navy in the most modern sense, and it is not intended to discuss possible methods of improvement.

No claim can be made of any success under the heading of Tuberculosis in Lung.

The following table of the cases and deaths suffered with tuberculosis in all forms has been obtained—

	Total No. of cases	Deaths No. of	Cases No. of	Deaths No. of	Cases No. of	Deaths No. of	Cases No. of	Deaths No. of	Cases No. of	Deaths No. of
For 1931-1932	1,475	40	27	100	27	100	114	72	11	45
For 1933-1934	1,403	35	11	100	11	100	128	12	14	44

No figures of the total personnel under each heading in the two periods are available, but the figures suggest comparable percentage of cases under each heading, with exception on the cases of web berth staff and of telegraphists. It must be emphasized that no figures are produced on part of this suggestion, but the total cases suggest a higher percentage incidence in these two classes than in the remainder. As far as the web berth staff is concerned, attendance on basis of tuberculosis in naval hospitals under hygienic conditions should not entail risk of infection, but attendance and passing case of tuberculosis in H.M. Ships during passages and prior to transfer to hospital does appear to entail some risk.

*Appendix: Deaths from—*It is again difficult to obtain comparable figures

under this heading for the two periods under review, but an extract from the Reports of the Medical Operations on Japanese Detachments was published in the *Journal of the Royal Army Medical Service*, 1943, page 326. In this, two years (1941 and 1942) were compared.

In 1941 gastric ulcer and duodenal ulcer equalled 0.02 per cent. of the force.

In 1942 gastric ulcer and duodenal ulcer equalled 4.18 per cent. of the force.

Here there is no comparison, though the frequency in 1942 is certainly more accurate than in the earlier period. The improvement has occurred in spite of a marked improvement in moral dietary, and a still more marked improvement in dental treatment.

The French cannot gastrointestinal death under this heading, but it seems that a similar state of affairs exists in civil life, and in this respect there is room for remarks and improvement.

The consideration of the above disease groups does indicate that a considerable amount has been accomplished in the prevention of disease and in its treatment, but that further improvement is possible even under the difficult circumstances which must of necessity exist in the Royal Navy.

Finally, there is the question of the improvements in surgery which have taken place.

The War with its mass of battle injuries which did not conform to textbook cases or textbook degrees of severity necessitated a re-examination of ideas of surgical treatment, for with heavy weapons of the types and of the severity and with a new rifle shrapnel that with the approved rules of engagement the truth must be lost, or the final result must be so serious, namely that it is lost, amounted to a system break. Under these circumstances, experimental departures from set procedure were not only justified, but called for, with the result that many tricks were used and many which would have been useless were rendered capable of efficient, if in some cases restricted, service.

The methods retained as that some have been further developed and have been found in the treatment of cases of fractures in post-war periods.

Appendix to the Navy has an aspect which is not so apparent in civil life. An officer or rating with appendicitis which will subside, is a potential danger to himself. The measures of an attack cannot be forecast, nor can it be forecast whether the individual will have his recovery in a ship with a medical officer or not, or if the measures may not come in a ship with a medical officer who, however, can do very little owing to relative isolation and distance from port. In the interest of the patient, therefore, operative procedure in the treatment of disease. Figures indicate my preference, or otherwise in the two periods under review are not completely obtainable owing to changes in the methods of reporting in *The Medical Officer's Report*.

For the period 1930 to 1939 the total number of cases of appendicitis do not appear to be available but 494 operations for appendicitis were performed with 30 deaths.

In the period 1920 to 1929 figures are less complete from this point of view. However, the year 1929 shows a total of 426 cases of appendicitis with 5 deaths, though the total operations from this source are not stated.

No figures appear for 1930, while 1931, 1932 and 1933 show no total case figures and no operation figures, but show eleven deaths from this disease in the three years. There is sufficient evidence here that the total cases of appendicitis have increased. It is well known that the total operations have increased, while on spite of the increase in case incidence and in operations, the death rate has markedly decreased. This may be taken as an indication of improvement in surgical technique.

This subject cannot be closed without reference to the work of Surgeon Royal-Admiral Sir John F. Dingle on the dissemination of infection, and on connection with the occurrence and spread of typhoid, which work was carried out in the Service and for the benefit of the Service but which has proved of such import that it is accepted and adopted throughout the Medical World.

A summary of deductions from reports noted above may fairly be as follows:—

(1) Generally there is a marked improvement in the prevention of disease, in the diagnosis of disease and in the treatment of disease. This is especially noted in tropical diseases, in venereal diseases, and in the more severe respiratory conditions.

(2) There is an improvement in the standards of birth (maternal and/or paternal).

(3) Digestive disturbances have decreased.

(4) There is room for further improvement in practically all items but investigation is more especially required in those items noted under (1) and (2) in this summary.

(5) The medical officers who have served during the period under review may congratulate themselves on having achieved considerable success in the work of their plant office for their patients and for the Service.

USCANT BEETLES OF THE FAMILY STAPHYLINIDÆ

BY NORMAN THOMPSON, D. SC. (HON. DEGREE 1911)

In April 1904 Surgeon Lieutenant Commander J. W. L. Cassell [1] contributed to this Journal an article entitled 'Notes on an Epidemic of Spider Bugs' in Chungking, during August and September 1903. In it he described a widespread epidemic of this name tropical beetle occurring both in ships and ashore, and gave a concise and interesting description of the clinical symptoms of the condition. He came to the conclusion that the skin lesions were produced by a small insect hitherto known as "sping wai," of which he gave a sketch resembling *T. B. Wigglesworthi* [2] (who has opined that the insect was probably a Staphylinid beetle, probably belonging to the genus *Pedius*), an opinion of which we are responsible for "spider bug" and similar conditions in many parts of the world. Cassell showed that these insects produced an anal irritation but contrary to the results of other observers failed to produce blistering by crushing these insects on the skin.

The writer has since learned that this so-called spider bug is very widely spread and is a cause of serious annoyance, to say the least, of it, in gunboats on the West River and other parts of China.

His attention was recently directed to an article on this subject in the *Revue des Trichines, Parasite d'Asiologie* [3] of which a slightly abridged translation is given below.

VIENNETE BEETLES IN TONKIN (PÉRIODES FOURMÈRE AND J. FOURMÈRE, AN ENTOMOLOGICAL CLINICAL AND HYPHODERMAL STUDY IN CHINESE CLINICAL MEDICINE, NANTZ AND BOULEVARD PARISIEN, 1904, IN FRANCE).

Since we have been at Fochin, we have had occasion to observe every day during the summer months, in domestic as well as in foreign houses, of venereal diseases, occurring spontaneously in truly epidemic outbreaks. It is curious to notice that although the insects were none of the usual agents of these lesions, it was, up till now, quite unknown to European travellers certain staphylinid and cerambycid beetles have been recommended, but although doubtless very rare cases of blistering may be attributed to these insects, it is, in fact, compensated for the patient to have reported the presence of other. Having noticed, by personal experience, that these lesions of venereal diseases correlated with the appearance on person of nocturnal flights of very small winged insects which penetrated into the intervals of incomplete beds we were readily led to establish a relation between cause and effect.

*The identification of captured insects confirmed our hypothesis.

They were found to be, in fact, beetles of the genus *Pedorus* and particularly *P. fuscipes* and *P. affinis*, whose blistering action has been reported from several parts of the world.

"In order to clear up this small point in Toxicon's pathology, we thought it would be useful to continue the study of the insect, to demonstrate its pathogenic power by clinical study and animal experiment and finally to discover the nature of the poison secreted by it.

"*Reconnaissance at Berlin.*

"*Pedorus* is a small beetle of the family Staphylinidae which is found abundantly in every season of the year along the muddy banks of partially flooded rice fields, lakes with grassy edges, and marshes. When the vegetation surrounding such collections of water is destroyed, these Staphylinidae may be seen creeping to the surface of the water in this burying themselves in holes in the moist earth. They are found in clearly defined colonies, thus showing their well developed gregarious habits resulting from a form of lycidism, but these colonies are always in close proximity to permanent collections of water.

"*Pedrus* and *Exoco* (H) point out that the genus *Pedorus* is very widespread and contains more than 150 species already described. They report eight species known in various various proportions: *P. fuscipes*, widely distributed in Asia; *P. persicus*, common in Java; *P. erythronothus* common in Mexico; *P. hispanicus*, *P. pusillus*, common in Europe; *P. californicus*, *P. pusillus*, *P. americanus* common in Brazil.

"*Reichner* has given titles for the differentiation of the Staphylinidae of the Far East; *Coussac* has made a study of them in "Fauna of British India, Vol. 12.

"*P. V. Linné* (H) as two numerous works has studied in detail the morphology and biology of *P. fuscipes*, illustrating the different stages in the life cycle of the insect: eggs, larva, nymphs and adults.

"The eggs which are spherical are laid in great numbers about 5 cm. below the surface in close proximity to the edge of the water. They hatch out in two or three days, the larva continues to live in the mud and decaying vegetation and feed on the larvae of other insects. In the space of a week they undergo three successive moults and become nymphs. The nymph stage lasts for three or four days and is the complete life cycle requires about ten to twelve days.

"The larva, at first of a brown colour, is about 1.7 mm. long but after the first moult takes up an orange tint, with yellow head. In the third and last larval stage it is about 4 to 5 mm. in length and is coloured grey and the body is then covered with fine hairs. The nymph, about 1 mm. long is at first white, becoming as it grows older of a green or even yellow colour with orange spots on the abdomen. The adult is 6 or 7 mm. long. The head is dark and brown antennae whose segments are three or four thick. The thorax is yellowish brown and the ante-

and metathorax are covered by blue or dark green wings. The first four abdominal segments are reddish brown in colour, the last two are black. The sexes are distinguished by the morphology of the ventral aspect of the last abdominal segment: in the female, the ninth sternite forms a single piece while in the male there is a medial cleft.

"THE PRESENCE OF THORAX"

H. F. de Geussens, in whom we are indebted for the hard systematic study of this group of the ichneumonids, has kindly provided us with the bibliography of the literature he has made on these insects up to the present in London.

¹ As Hols (Hols) he was able to identify the following species as explained insects:—

² (1) *P. albimanus* (Walker), (2) *P. fuscipes* (Curtis), (3) *P. parvipennis* (Clausen), (4) *P. ruficornis* (Cresson), (5) *P. ruficornis* (Clausen). The male *P. ruficornis* appears to be a new species, of which, unfortunately, we have been unable to obtain a description.

— The insects which have given rise to the literature described in this paper, and which we have used in our research, belong to the two following species:—

³ *P. albimanus* (Walker) and *P. fuscipes* (Curtis) of which we give a brief description from the works of de Geussens and Hols:

⁴ *P. albimanus* is 6.7 mm. in length, the head and last two abdominal segments black, the thorax and first four abdominal segments reddish brown, the wing veins blue. The antennae and palpi are black, and the legs are black with the basal part of the femora red. It resembles *P. fuscipes* (Curtis), but the head is smaller.

P. fuscipes (Curtis) is 7 mm. long. The head a dark blue colour and almost as large as the thorax, it is evenly smooth in the middle, but the sides and base are finely punctate. All the segments of the antennae are longer than they are broad. The thorax is convex and rather longer than it is broad, its sides straight and slightly reticulated posteriorly. It is smooth on the ventral line but finely punctate on the sides. The wing veins and abdomen are dark and closely punctate and covered with a whitish down. Long black hairs are present on the body. Further work is called for on the systematic classification of these ichneumonids in India. One of the characteristics mentioned above, based especially on the coloration of different parts of the body can hardly vary according to the age, sex, and place of origin.

"RACE, OR DIVERSITY"

⁵ These insects appear to be widely spread throughout India, where they infest various species and the larvae produced by them well known to the native population. Our observations do not yet allow us to state exactly the nature of rearing of these insects or of their disappearance. From

May to September their flights are very numerous, the insects, attracted by artificial light, penetrate into houses—now and then capturing them quite easily on mosquito nets or clothes, and it is at these times that the larvae described in this article occur.

"After the time and during the whole of the dry season, *Peridroma* is no longer found as droilings; their flights have ceased, but they can easily be collected from their natural haunts, and this fact has enabled us to pursue our researches throughout the year.

"Conform to what has been noticed in other parts of the world the insects do not there disappear entirely. The species which follow the heavy rains do not appear to be so deadly to them, as has been reported, for example, in India, the great variety of sites allowing them to find other favorable places when their customary haunts are overwhelmed by the water.

"PATER-FLEX ACTING IN MAN

"We have seen above that *Peridroma* *Europæa* and *Peridroma* *informis* are found throughout the year in Poitou in standing food, by the banks of rivers and streams, and in flooded corn fields. However, it is only from May to September that locusts become so actually swarmed and that true epidemics of enormous dimensions are seen.

"In warm countries, especially on stormy nights, considerable flights of them to leave their haunts and attracted by light, make their entrance into houses. Their noisy clamorous and then great supplemen allow them to constitute swarms in cities, rendering such protection of every

By dawn previously, all the insects have retired to their haunts.

"The numerous remarks already made on this beetle have shown that it is not spontaneously aggressive and it is quite harmless so long as there is no injury to its exterminators allowing the continued swarms to keep its strength. The proof of this is that swarms of *Peridroma* and such as a glass vessel and put in contact with the dry produce no longer, whatever when possible. If, on the contrary a *Peridroma* is crushed on the skin so as to reveal its segments allow a sudden liquid to escape and this fluid produces a disagreeable blower. It is therefore easy to understand how the human are produced. A sleeping person, feeling an insect crawling on his body, unconsciously attempts to drive it away and as partially awake is rubbing it on his skin and throwing the resistant fluid. No immediate pain follows the contact of this liquid. It is only after about twenty-four hours that blotches or linear lesions of a dark-red tint appear on different parts of the body. After another twenty-four or forty-eight hours blotches appear on the side of the nasal system. The blotches are of variable size unless exposed to sunlight, filled with a yellowish-green purulent liquid and stand out clearly from the red and black ground. They are accompanied by intense, more or less marked according to the region of the body on which they occur. The lesions are accompanied with itching, burning, and sometimes burning pain.

Whether by direct contact by the insect or by the carriage of the infectious fluid on the fingers, the different causes mentioned are by far the most of such lesions. On the eyelids the lesion produces a rapid and extensive edema accompanied by itching and lachrymation.

The progress of this dermatitis is rapid and benign. In a few days the lesions flatten and dry up, the epidermis desquamates for four or five days and nothing is left but a copper-coloured pigmented patch which sometimes takes a fairly long time to disappear. More rarely when the lesions are exceptionally large and numerous and are repeatedly renewed on several days in succession, the state may be accompanied by fever and general malaise, but as a rule the lesions caused or seen by *P. jansoni* and *P. infans* are strictly confined to the skin, and if disagreeable, are absolutely quite harmless.

² PARASITIC ACTION ON LABORATORY ANIMALS

¹ We have made experiments on rabbits and on guinea pigs. The pathological action of the fluid received by the insects has been investigated as regards its simple contact with the skin, and its subcutaneous, intra-muscular, intraperitoneal, intracerebral, and intravenous injections, using thousands of animals in which is no physiological and isolation. Our experiments have shown that it is a matter of indifference whether living insects, or those dead and dried are used: in fact we obtained identical results with emulsions of living *Podocis* and with those of *Podocis* dried for a period of eight days to one or two months.

³ A.—ACTION ON THE SKIN

10. *Podocis* were crushed in a mortar and the powder obtained mixed first in 20 c. of absolute alcohol. Without shaking, the liquid was allowed to drop on to the upturned skin of a guinea pig's back. The next day the surface is covered presented an intense erythema. After forty-eight hours small isolated vesicles appeared, growing rapidly in size and later becoming confluent. The skin becomes coated, swollen and inflamed until the back of the guinea-pig appears to be one large wound. At the end of eight days desquamation begins and is completed in a month with complete restoration of the tissue. If the alcoholic alcohol is replaced by normal saline exactly similar lesions are obtained.

Histological examinations show the ordinary lesions of injury directly limited to the skin.

² Similar results were obtained with rabbits.

⁴ B.—GONORRHOIC INOCULATION

¹ We first worked out the minimum lethal dose for guinea-pigs and rabbits—showed that 5 mg. of dried powdered insects, that is to say two *Podocis* were required to kill 500 grms. of living animal. Rabbits and

joint legs were equally susceptible. The results were the same whether fresh insects were used or those which had been dried for several months.

"*Chomomy*—Some hours after inoculation the animal becomes very ill, its coat is shining, there is complete anorexia and partial or complete paralysis, affecting first the hind legs and later the fore legs supervenes. The animal is incapable of rising on hind and fore feet on the floor, from time to time it is shaken with dense convulsions. The respiration is irregular with sparse periods some hours before death, which occurs from twenty-four to thirty-six hours after inoculation, the temperature becomes subnormal. A few animals which survived the inoculation presented more or less marked paralysis of the limbs and convulsions. The symptoms, however, passed away in two or three days, complete cure following. At autopsy of the animals which died following the injection of the bacterial killed dose, there was a very small slough at the site of the inoculation with congestion of the blood vessels and enlargement of the regional lymphatic glands. There was no peritonitis, but often intense congestion of the mesenteric, the gall bladder and urinary bladder were noticed, the other organs, lungs, liver, spleen, kidneys and suprarenals showed no noteworthy lesions. *Albuminuria* was the rule.

"*Result*—In rabbits the same clinical symptoms and pathological findings occurred.

"G—INTRAVENOUS INJECTION

"The results are virtually comparable to those obtained by subcutaneous injection.

"D—INTRAPERITONEAL INJECTION

"To produce death by this method double doses are necessary. Death occurs at thirty-two to forty-eight hours without any special symptoms. At autopsy there appears to be no appreciable lesions of the peritoneum or other organs, but there may be slight peritoneal, pleural and pericardial effusions. *Albuminuria* is present.

"E—INTRAMUSCULAR INJECTION

"Intramuscular injection of 0.5 cc. of saline containing four virulent *Pasteur* kills a rabbit of 5½ lbs. weight in thirty-two hours. Smaller doses are borne without trouble and larger doses kill the animal in twelve to twenty-four hours. There is no special symptomatology, the animal remaining motionless on a corner of its cage and dying. At autopsy there is distention of the stomach and bladder and peritonitis with effusion. *Albuminuria* is present.

"F—DORSAL INOCULATION

"Very recent results follow the procedure—If only one dead *Pasteur* is inoculated in 1 cc. of normal saline and 0.2 cc. of this is injected under the skin twice of a rabbit, the animal is killed in twelve to fifteen hours.

Pathology.—Examination of organs obtained at autopsy have shown that, apart from the liver which often presents minute lesions of fatty degeneration limited to the hepatic cells in the neighbourhood of the portal vessels, the tissue affected by *Podisma fascipes* and *P. albicans* was practically exclusively on the kidney. This is shown by the constant presence of albuminous nodules demonstrating the predominance of glomerular lesions. The enlarged glomeruli present very marked congestion, the capillaries being distended and engorged with blood. Within the capsule are found uninfected cells and red blood corpuscles. The tubular lesions are far less important, well exemplified in the secondary tubules shows evidence of genuine degeneration without desquamation. In fact, a hyaline glomerulus exactly similar to that described in experimental nephritis caused by carbon tetrachloride, is present.

To sum up, we have shown that it is possible to reproduce in animals the same venous action that is caused in man by *P. fascipes* and *P. albicans*. By employing strong doses of the poison and looking at an extensive surface such as the ear of a rabbit we have obtained considerable dermatomic lesions. In fact, we have proved that in addition to its venous properties, the toxin has a rapid and selective action upon the kidneys, causing, in relatively weak doses, death by a hyperacute toxic nephritis.

1. DISTRIBUTION OF THE TOXIC PRINCIPLE IN THE BODY OF THE INSECT

On this point the conclusions of different authors are very divergent. Jordan (8) remarked that the blanching fluid comes from the mouth and not from the anus or the penis. Farlow (9) and Sims (10) consider that the toxic principle is present in the blood of the beetle, but that it is only by the continued action of the blood and of the movements of the male or female generative organs that formation can be produced by simple friction. Our experiments have demonstrated that blanching can be obtained only by the filtration of the liquid contained in the sensitive body by rubbing of the integuments especially those of the abdomen.

In an attempt to localize the distribution of the toxin in the body of the insect we made separate analyses of the head, the thorax, and the abdomen of dead *Podisma*. These analyses were tested on guinea-pigs by simple contact with the spinal skin and also by subcutaneous injections. Analyses of thorax and of abdomen gave exactly similar results, namely local blanching of the skin or death from toxic nephritis according to the route of inoculation and the lethal dose was the same. Analyses of the heads of the insects gave the same result, but it was necessary to use much greater amounts.

These results appear to indicate the presence of the toxin in all parts of the insect's body.

The strong, that perhaps after death and during the process of decomposition the fluid contained in the various organs might spread through and impreg-

muscle which would be repeated in experiments using head, thorax, and 1-3 mm. apt from live *Fedrus*. The conclusions of observations given exactly the same results as those in the previous experiments, but it was necessary to employ double the dose of thoracic contents to obtain the same effect, and four times the dose of contents of the heads of the insects. The active principle, therefore, is present in the blood of *Fedrus*. It is secreted by the reproductive glands of both sexes and passes into all the organs of the body where it can be found in the living, as well as in dead and dried material.

ATTEMPT TO IDENTIFY THE TOXIC PRINCIPLE.

The nature of the toxic principle secreted by *Staphylinidae* in general and by *Fedrus* in particular has been very little studied up to the present. Patton and Evans, in 1929, recorded the presence of Neichinsky who concluded that the active principle was not carbohydrate but the results of our own experiments inclined us to the opposite opinion, and we tried to prove this by the following experiments.

"The toxin was extracted by digestion of the insects in boiling alcohol, a clear yellow liquid being thus obtained. This was tested for carbohydrate by the colorimetric reaction described by Douglas, in which case a shade of the property possessed by carbohydrates of giving a brown coloration developing in solution in which when combined with bariumhydroxide variable amounts were used. The solution also gave chemical reactions similar to those of solutions of the carbohydrates of glucose."

"The active principle, then, is carbohydrate or, at least, a substance very closely allied to it."

"SUMMARY"

"The venereal disease is occurring in Tonkin during the summer is caused in the great majority of cases by the action of *Fedrus* (Jaquet and *P. schusteri*). These insects are found throughout the year in Tonkin. The time of their distribution is well spread. Their pathogenic action is in evidence from May to September and is well known in the native population. The blighting effect is produced by contact with the skin of the blood of *Fedrus* when it is liberated by crushing the insect. In case the human skin happens and limited to the skin. Animal experiments have demonstrated that the active toxic principle enters readily the terminal system, a toxic action ensuing in relatively weak doses, death from acute sepsis. The active principle is present in the blood and in variable amounts impregnates every part of the insect's body. Finally, the results of chemical experiments as well as the bacteriological findings appear to prove that the poison secreted by these beetles is none other than carbohydrate."

Two years before the above article was written D. M. Gordon [8] writing from the Sir Alfred Lewis Jones Research Laboratory, Freetown, Sierra Leone described practically identical findings with in another species

of *Pandora*. The first, *P. emmanens* was first encountered in 1931 at Marion Amusement where it proved a positive pest on the river streamers. It was known as "Pete" (personated Pete) by the natives who believed that it produced a blower if it alighted on the face when Gordon was unable to verify any such injury but produced results similar to those described above by scratching the mouth against the skin. The second species, *P. umbra* was observed at Brown Lake and experimental results with this beetle were very similar but of a slightly milder nature than those revealed with *P. emmanens*.

REFERENCES

- (1) Journal of the Royal Society Tropical Hygiene April 1931 30 No 1
- (2) Free For All, Ed. 1, 131
- (3) Arch. des Inst. Inst. d'Industrie April 1931 No 51
- (4) Notes and Comments, India, London 1930 p 101
- (5) International Journal of Tropical Medicine 1931 1, 1
- (6) Ind. Journ. of Hyg. 30, 1931 99-100
- (7) J. of Hyg. Ind. and Journ. March 1931 No 10

1931-32

THE LENGTHY FLOODS OF 1931

By GEORGE HENRIKSEN, CHIEF ENGINEER C. H. TYLER, R. N.

Little recent change has occurred in China, the risk of the floods of her great rivers goes back to times immemorial. The Yellow River, for example, has consistently shown a streak of malignant personality in its behaviour, and in fact during the course of years has shifted its opening to the sea a distance of some 300 miles, and now shows signs of retreating in the opposite to this once more. The Yangtze, however, has not proved quite so erratic, though the damage caused by its potential flooding has been quite as extensive. Also there were doubts that of recent years these floods have become worse though this statement needs some qualification.

Until quite recently the theory has been held that the floods appearing from time to time and also the normal rise in the river level occurring regularly during the summer months were caused by the melting of the snows in the Tibetan mountains. This hypothesis has been proved false on a number of grounds, which need not be related any here, but it has now been conclusively said that any abnormality in river level is due to the actual rainfall—or lack of it—over the immense expanse of country which is the watershed of the Yangtze. An general rule, run in this area comes almost entirely during June, July and August. It is not a continuous "wet season" like that met with in West Africa or in any tropical country, but generally takes the form of a heavy fall of heavy moisture-laden, raining on the creation of momentary torrential rushing down to the more slowly moving main stream, and taking with them many tons of earth (in the aggregate) rocks and other debris. The end-result is that during extensive

of such "excesses" the bed of the Yangtze has become silted up, so that the stream is shallower by many feet than it was, say, one hundred years ago, and any unusually heavy rainfall sends its withered banks to crown the river to overflow its weathered banks so much the more readily. Yet another factor has appeared which has reduced a swollen Yangtze to even greater measure than it was generations ago. In the process of water-borne trade, huge towns and villages have sprung up on the river banks, and farmers, in their struggle for existence, have encroached further and further on gradually dangerous areas. All these separate properties have been protected from the possible ravages of floods by means of levees built by law, thrown up quite haphazardly and without any possibility of coordinated scheme. Up to a point these dykes are successful (as for any small rise in



Fig. 1

river level), but they rather tend to limit the normal overflow when the already shallowed stream is excessively swollen, so that should a dyke burst under these conditions (as it only too often happens) millions of tons of downstream water are, in a comparatively few seconds, let loose, and the resulting damage to life and property is enormous. It is evident that if the inhabitants of the low-lying areas were extended instead of confined to being placed on these dykes, the loss of life would be considerable compared with the death-roll resulting from the floods of recent years.

As measured by the number of deaths, the heaviest losses and the area involved, the worst flood of recent times occurred in 1931, when Hankow became all but a ruined city. There are, however, a number of points of difference in the scope, nature and magnitude of this flood as compared with that about to be recorded. In the first place, the inundations of 1931 were caused by a steady continuous rain during July and the first half of

lagoon, and it continued to correspondingly rise as until the peak was reached on August 14. When then the nine above Hanksen were now affected and Hanksen itself was flooded by the water breaking through the "band," or reverse dike. In 1936 the deluge was due to a dikeburst—or rupture of dikelements—over that part of the watershed of the Tanager to the province of Sachwan some 100 to 200 miles upstream from Hanksen. The effect was an extremely sudden rise resulting the overflowing above it, the result of the expansion and subsequent water taken above 1100'. The local deluges in the case of Hanksen proved adequate that only "past" and the real danger threatened from the rise of the city, a totally unexpected turn of events.

The story of the 1936 flood can now be followed by reference to the map (Fig. 1) and in correct sequence of events. During June the river was considerably below the normal level, but on June 29, 30 and 31 extremely heavy rains fell over the province of Shensi and Kiangsi. Not only were these sufficient to raise the level of the river at Hanksen and lower-lying parts to well above the normal, but they also filled up the Yangtze and Peking lakes which act as safety valves for a swollen Tanager.

On July 4 an enormous dikeburst exposed itself upon Ichang and over a large area of the province of Sachwan. Between July 4 and 5 the surge-gauge at Ichang registered no less than 27 in. (nearly one and a half times as much as the average rainfall over London in a year), while on July 5 alone, 16 in. were recorded. The effects of this unusual and concentrated rainfall had to be seen to be believed. Raging monsoon torrents formed on a few hours (the height of the Tanager may be described as "penetrating" in this sense) and carried every surface of water, be it of water into the main stream, which, on the 11th, was estimated as having developed a speed of 5 to 10 knots. Ichang city itself was 11 or 12 miles from water and the watermark fell shortly, only 1 foot of the record set up in 1936. Houses, trees, boats (dead and alive) and all manner of debris and persons were carried past. Between at the port dragged their anchors and two serious collisions resulted. The city itself was not affected by the rise in river level, as it is built on high ground, but the marshes flooded the place and caused considerable damage.

Thus an island "island" camp equally on its course of destruction and when, some 20 miles below Ichang, was the next town of importance to meet the flood. Here being a band of new construction but between July 4 and 7 this was completely inundated and partially destroyed. Thanks to a large dyke stretching for miles in the rear of the city the overflowing flood water was unable to find escape, and the higher the river rose and the more the land collapsed, the deeper there and the surrounding low-lying country found themselves under water. The Chinese Government describes with picturesque detail how he attempted to catch a large fish in his drowning room (5) in water water) and the more

of the date were directly with the hour of the night the story is told. All telegraphs, and postal communication was destroyed, the police were powerless to maintain order, and the local military simply replicated the proud traditions of the Chinese Army by commandeering all companies and other major units and made for safety, leaving the frightened citizens to drown or to take refuge on their rooftops. Eventually the bursting of the dyke in the rear of the city enabled the welled up mass of water to spill itself over the surrounding country, causing not only enormous destruction of life and property but also an appreciable drop in the water level of the middle Yangtze. This escaped flood-water was, however, to cause even greater havoc at Hankow, as will presently be related.

A steadily rising river and the water of the inundations at Ichang and there caused considerable apprehensions at Hankow. On the evening of



FIG. 2

July 1 the Japanese (submerged?) which had been responsible for the heavy rifle-spreads passed over the city. Seven tonnes of steel fell between 1400 and 1500 and the result of this deluge gave the inhabitants a low taste of what a flood might be like. All houses leading to the river had been dammed up by the rising waters (already above city level) and there was no means of escape for the poor wretches. Some of the streets were flooded to a depth of 3 to 4 ft., and the situation (particularly as regards the municipal electric supply and the possibility of losing should the lighting system fail) assumed serious proportions. Naturally, the entire sewage system was put out of action and in a city with a population of 500,000 this presented grave hygienic problems. Portable electric pumps were almost immediately installed and two refuge taps were actually worked alongside the flood and aided in the pumping operations. Within three days the menace of the waters within the city had been removed.

In the meantime effect was concentrated on the defence of the city

In 1941 the point of exit from the wall proved to be the flood wall, but this had been already rebuilt since that date. A long stretch of concrete had been constructed on the river side of the bank, as shown in Fig. 1, which, incidentally, indicates the water level at this early stage.

The system of double dikes in the "polders" of this wall (as illustrated in the picture) enables a double set of dikes to be built, forcing water to gull it, thereby raising the height of the wall some 1 ft. The space between the double set of dikes is filled with clay and rubble and compacted down, forming a very efficient "barricade". Thus in the course had to be erected to the level of the double rows eventually reaching to within 6 in. of the top of the wood and clay barricade and the top side of the wall was piled against the enormous pressure of the water outside by forcing hundreds of sandbags up against it.

By this time, considerable fear was entertained as to the possible destruction of the bank from leakage and its fall dam was exposed in Hsueh on July 19. By the 11th nothing had happened and the water level remained steady. As the weather for the past few days had been reported fine from up- and down-river ports, it was confidently assumed that the breaking of the dikes in the Hsueh area had resulted in the freshets having disappeared over the surrounding country and that therefore Hsueh would not fail it. On the night of July 22-23 some destruction came. The water level rose a foot, and on a further survey of the situation, the authorities realized that the unexpected had occurred and that disaster in the most catastrophic sense had taken place.

What had occurred was roughly as follows. The flood water speeding over the Hsueh dike had not all, or nearly all, become agglomerated on the bank of the Hsue River (see map, Fig. 1). The river is normally a comparatively small, narrow stream, running for a large part of its course between high hilly banks, and altogether hopelessly incapable of dealing with the enormous volumes of water now split into its banks. It became a violent torrent of so much congested, banking dikes on the sudden overflowing of its banks (where this was possible) utterly obliterating villages and almost completely submerging the town of Shanyang (with a population of 40,000 souls) which is situated on the bank of the Hsue opposite Hsueh. The destruction to life and property was enormous, even for China where such disasters are almost commonplace in their proportions at the best of times. In fact it was the unprecedented, and hitherto unrecorded, sudden flooding of the Hsue, which was responsible for the major proportion of the total destruction of life and property of the 14th flood. These flood waters found their natural escape towards the river at Hsueh, bursting the existing dikes (shown in Fig. 2—a very dangerous one) and finally emptying themselves into Shanyang Creek, which, in fact, was a completely inadequate safety valve.

There remained but the aged and decrepit bamboo shaped Chin Hsue dike between Hsueh and Shanghai (see diagram). View of this dike

as far as one could see, the water was one vast expanse of water with only occasionally a house top or half appearing through the surface. The dyke at its summit is about twice the breadth of a motor car track, and this was now packed with the refugees from neighbouring towns and villages which were now completely submerged. They were there in their thousands, living in makeshift shelters, most of them without food and all of them miserable. Even their present hold on *terra firma* was precarious, as many engineers were convinced that the super-saturated dyke could never withstand the enormous pressure of water, and must eventually burst at one or more points, in which case nearly most of these homeless refugees were doomed since all of them could not possibly be transported to safety.

As has been mentioned before, this threat to Hankow from the east was wholly unanticipated and the authorities were faced with the problem of



containing this very noisy and now soon harrassed, and doing it swiftly. Naturally, the official who should have taken charge is the head of what might be termed the local branch of the river conservancy board. Dykes were definitely his province, but at the first hint of the development of a really serious situation, the diplomatic demands of a new and less salacious minister had to succumb and quickly to his demand posts. The idea of the Minister, however, was not lacking. The local governor remembered, the Mayor of Hankow and a foreign engineer threw themselves into the task of saving the city with energy and still hesitating in the language who has become used to the "Shanghai can-be-done-about-it" philosophy of the Chinese. To relieve the pressure on the Chungking dyke, the military establishment in the vicinity of lower Yichang Creek was moved up, thus meeting the draft in discharging the flood waters in the Yangtze, but still the chief danger to the city remained—the weakness of the dyke which already showed signs of crumbling and collapsing in certain sections. The first obstacle was plenty of labour. This was easily obtained by the

elementary procedure of using blocks paraffined (if available) and counterweights and pressing any cables at night into the 'laborer camp.' These were taken by horses to danger spots on the dyke and at the point of a breach, were kept at the jobs of mending stones, filling and plugging sandbags, job driving, or any other essential duty. They were allowed an occasional "staid-camp," but not often, though the pay was as hard cash, 'on the spot,' and, one gathers, adequate. Food supplies for the laborers were, at first, miserably meagre and in fact there was no organization; and it was some time before they could even be provided with tea, according to the cables working in the summer heat as he became almost hydrophobic towards water whether externally or internally applied. And as the battle went on, continuously day and night for twenty or more hours, simple and emergency procedures were adapted for dealing with the cables. He was slow. The justification for these extreme disciplinary measures was founded on the simple argument of liberating the cables: "Condemners" and so every right-thinking Chinese worker, though as slow as snails as yet and for work versus. In one instance it was considered that one busy N.C.C. was not getting sufficient work out of his particular group of workers. He too realized the extreme penalty and his body was left on the dyke as a warning to others not to "pull their weight." On another occasion it was learned that a syndicate of rascals were, violating the golden harvest ropes on the peeling days of the 1914 deluge, had made attempts to let it down the dyke at a weak point, so that the rope should be flooded and they could cast away some a rope "beyond the domain of man." These, about a dozen all told were lined up and dealt with by a firing squad.

The labor involved was enormous. Some 10 miles of the dyke had to be strengthened, and in some particularly weak sections this was accomplished by driving in piles some 14 yards or so on the city side of the wall, and filling in the gap between the piles and dyke with sandbags, gravel, mudbags, stone were required. The pay was paid for gunnery-men, generally they were paid for, but sometimes not, as in the case of one Chinese specialist who had made a small fortune in this emergency and was working for the price to him in proportion to the demand. This man indeed surprisingly escaped the death penalty but he lost his gunnery-cable and his identity. In one section the real contest to build the filling the sandbags was a gunnery. Stone and broken porcelain (and others not so abundant) treated to the fireworks on an object which was almost invisible to the naked eye.

By the end of these days in spite of the high pressure and the strenuous labor of thousands of working cables, the outlook was grim. Some of the authorities were convinced that the dyke could not be saved, and recommended that it should be left to its fate and work should be concentrated on reinforcing the embankment of the Peking-Hankow railway, which runs through the city and was high and massively strong enough to form a

second line of defence. This would have meant surflough a large stretch of agricultural land, a foreign-owned estate and the greater part of the so-called 'Chinese city'. In fact, only the foreign or concession would have been saved, so naturally this move did not appeal to the Chinese. At this juncture (July 1st) the city proper (which is the highest part of an area enclosed by the Chien Shien dyke and the land) was 2 to 3 feet below the level of the flood.

On July 17 the water level began to show a gradual but steady fall which was maintained. The panic, however, took longer to subside, so it was fully realised that another basket down either the Hsia or Yangtze would wreck the already overburdened and long-suffering Chien Shien dyke. Fortunately, the weather remained dry. Conventional stores, magazines, firearms, etc., which had been shifted from their normal storages were replaced, and by degrees the city resumed the "even tone" of its way. Everybody rejoiced, however, that disaster had been averted by the paraventricular's brinkish, and those in the high places of the sphere of trade, politics that it will take Hsinchow at least two years to recover from the fright, loss of face, and general financial and commercial upheaval.

The havoc caused by the floods was assessed by the official National Flood Relief Commission of Nanking to be as follows:—

Material damage—\$50,000,000 Mexican dollars (about £15,000,000)

Lives lost—400,000.

People rendered homeless—24,000,000

Area inundated—300,000 sq. kilometres

Regarding the possible "epidemic" of the flood which might concern men and personnel, the one basic apprehension amongst was that of some epidemic, particularly cholera, occurring. At the best of times Hsinchow is an over-crowded city and when it is packed almost to suffocation point by an extra half-million refugees, the state of affairs is poor, particularly in view of the heat of the summer and the questionable sewage system in the Chinese quarter. To forestall any possible risk on the material a quantity of anti-cholera vaccine was ordered early from the Shanghai Municipal Laboratory. This was kept permanently in the ship of the common used others in Hsinchow with meticulousness that it should be distributed in ships of the depths should reports lead to the suspicion that an epidemic was imminent. Fortunately this contingency never arose.

In conclusion, the flood of 1935 had great spectacular possibilities, from the onlooker's point of view. Luckily, however, but those with vested interests, complete disaster was averted, but the common will always remain in one's mind as possibly one of the greatest "might have-beens."

Clinical Notes

DECONTAMINATION OF EYES WHICH HAVE BEEN CONTAMINATED BY MUSTARD GAS

By ROBERT CANNON, M. D., CHAIRMAN, J. M. H. S.

The term "gas" is commonly used although the substance itself may be solid, liquid, or gaseous. The "gas" most likely to be used by the enemy in war is what is generally known as mustard gas. This "gas" may be dropped from an airplane either in the form of a spray, in which case it falls to the earth on a low cloud, or it can be dropped in a bottle which bursts on impact, and finally, the "gas" may be compressed in a hollow cylinder and lead from a gun, but it is most likely to be discharged by means of the first or second method. Mustard gas is a heavy brownish oily liquid which evaporates slowly, and has the quality of being permeable to its various elements for a long time when it has been introduced so that it can be inhaled. This permeability is greater in the solids when evaporated on cloth, on fact of any reason, effective for weeks. It is called mustard gas partly because of its similarity of the skin when it comes into contact with it, which is the liquid made up of an vapors of an different concentration. It also has a small which is used to resemble mustard or garlic.

When used by mustard gas is different from that produced by the contact of the skin with hot water or ordinary burning material. In the latter the fluid caused by the contact collects under the superficial layers of the skin, and the gas itself undergoes some separation, those superficial layers or epidermises which have been treated, whereas in the treatment caused by mustard gas the irritating liquid collects under the deep layers of the skin and the whole depth of the skin is covered from the underlying tissue which eventually sloughs, leaving an area completely denuded of skin. In fact if the area being treated by the irritating liquid—the tissue is very swollen about which may take months to heal the time depending upon size. Fortunately, if the fact that the skin has been contaminated by this poisonous gas is treated at once, immediate and efficient decontamination—prevents these consequences. Even the above remarks it is obvious that contamination of the eyes by mustard gas under by splash or vapors, if of sufficient concentration, unless treated promptly and efficiently will have very serious consequences which may end in loss of sight. Two or three hours, after exposure to the vapors the eyes begin to smart and intense inflammation follows—this inflammation will make the necessary for several hours and is accompanied by hyperemia which will necessarily to the difficulty of treatment.

In order to prevent the above mentioned and dangerous effects, a continuous syringe has been designed for the immediate and rapid treatment of exposed gas contamination of the eye, for use in decontaminated stations. It was also designed for the treatment of burns which have not been treated sufficiently early to prevent the above effects. The use of the syringe is designed to hold the syringe upon and permit the action of the decontaminant fluid to be effected immediately. As the time factor in all exposures to decontaminant with these eyes can be placed on the eye by the physician and there held in place by the patient while the work of decontamination is being carried out on other parts of the body. The apparatus consists of an operating tube with rubber tube, for according to the eye cap, and a small tube to provide for the escape of the fluid. The syringe has

readily diminished, and the pressure was increased. On the right side the vessel was closed, there was less resistance, there was a slight pulsation in the right upper eyelid, and sympathetic with the long vessels in the right, and there was with increased spasm evident in both eyes. Whenever there was a well marked degree of asphyxia I was asked by one man in this point. I discovered some spasm of the left lower limb with its corresponding foot-jerk and ankle-jerk, and a distinct plethoric response. The abdominal reflexes were absent. The left arm was weak and when held up was required to drop of its own accord. There was ptosis in the right upper lid, and lateral nystagmus in various directions of the open (free) eye to the right. Papilloedema existed in both eyes and was marked, and a number of retinal hemorrhages were seen in the both, particularly on the left side. The voluntary movements of the legs were exaggerated. A rigidity and lack of response on the left side indicated on a singular occasion with the freely exaggerated rigidity of the right side of the legs. The pupils were large, regular in outline, and reacted sluggishly to light, but conserved well. The thermograph test was negative.

On December 13, for the first time the patient could walk the road alone, but her vision was extremely faulty. High points could still be detected on the right upper lid, the muscular reflexes were still sluggish, and the pupils were dilated. Other movements were normal and the limbs of vision were full. On December 15 it was noticed that the top poles of the legs were much less in contact than previously and walking had become a cross or less symmetrical performance. Resistance was becoming less marked, and the papillae were beginning to subside. He had a number of what he described as "leaky spots," small and occasional clashing pains across the vertex. By the 18th patient's expression was definite, the pupils were smaller, vision was less blurred, the patient had power, and better resistance to light, even to the neighborhood of normal. As regards the ptosis of the left eye, the left upper lid was still exaggerated, but all other indications had disappeared. The vertex of the right eye, there was discomfort and then of the left eye there was beginning to appear. The temperature which on admission was 100° F. had steadily descended without a break. The pulse was in the region of 60 throughout. As regards the lingual pressure, after measuring the proportion of red cells in whole cells was about normal. There were 14 units of sugar per 100 c.c. Protein was 50 mgm. per 100 c.c. The sediment was made after forty eight hours. The Wassermann and Kahn tests were both negative.

This case represents very distinctly the feeling of an asphyxia of one of the cerebral vessels may the sub-arterial space. The coloration of most of the passing fluidities, the measurements followed by these by normal looking, was a beginning of cerebral evidence. Together with, in this case a marked papillary, the stimulation of basal expression, and the double upper carotid, are all typical of the sort of history that is to be expected. A distinct loss of the limbs as to what the finger is, and where it is. Resistance in the case is an unexpectedly easy. The marked paralysis with ptosis of the right upper lid and a ptosis of the left side of the body is called Walter's paralysis. (The double paralysis in this case of more recent is mostly ataxic paraparesis.) It indicated a brain well injured in the right was marked. The lack of expression on the left side, and particularly the rigidity of the lower muscles, manifested the view of the brain, to move all the blood down from the upper extremities to the red cardiac part through the impact of the area. As the hemorrhage was observed in the parietal, probably thoracic, so it was in the case of the rigidity of the muscles of basal expression. The double upper carotid meaning in early evidence to the beginning of the month which develops the upper carotid, and giving marks the collection of blood in the first third, mainly present in the upper vessels with the resulting papilloedema and retinal hemorrhages. Such a brain may well be caused by an asphyxia of the posterior communicating branch of the circle of

With which the subject is covered aspect of the nose-jawline. This recovery has been accompanied by a fully normal headache and "black water" when the patient rises from the sitting to the upright posture. The question of food containing will depend on the diagnosis made in the preliminary of these interesting symptoms. As regards the facts, the present was recorded on May 19 1936, when it was seen that the upper lip had come back to normal with the appearance of more flowing on the ventral side of the upper lip and the nasal hemorrhage had been completely checked.

The second case I have to record was observed on May 20 1936. A patient, aged 25, developed acute headache, followed by a stiff neck during his bedtime while he delivered lecture notes. He was treated for a dramatic stiff neck, and duly reported to duty, but the symptoms persisted. He was sent to hospital where the following facts were obtained. He was slightly agitated, the headache was less intense than it had been, the stiff neck was improving but was still quite marked. He was quite unable to flex his chin on his chest. (Sagittis Cervicodis) (Sagittis) in which I was satisfied by pointing out the case to me, found the following. The tongue was lateral, the headache and stiffness of the neck were to above recorded. The pupils were normal on all inspection, and the position reflexes were brisk and equal. The abdominal reflexes were brisk and equal. During a sign was present. When the patient sat up to leave the chair, muscular rigidity of part of his back. Otherwise no abnormal physical signs were found in his medical history. Systemic examinations were made on the hands, and the upper chest were considered. The cardiopulmonary tract was blood stained, and there was a yellow tinged skin and clear underlying. The fluid was made after deep right heart. It was under some pressure. Arterial pressure was reported frequently, and on each occasion there was less blood staining, and the pressure gradually diminished. The temperature was in the neighborhood of 99° F throughout, and the pulse was between 75 and 85. It lay almost a slight tendency in the region of the neck, but no definite aneurysm was diagnosed. The patient gradually lost his headache and his stiff neck, and as the amount of swelling is considerable, and is showed up by short periods.

Aneurysms are most to occur either in the ventral vessels or in the head vessels, they are not uncommon. When they look they are sometimes better to be considered as a stiff neck or a characteristic. When these cases such cases have been sent to the passage room and been vigorously manipulated. The type of relief achieved in the neck following the sudden onset of passing headache should put one under a great. The shocking lesions in the diagnosis is the blood in the hemorrhage of fluid.

Aneurysms of the ventral vessels are of two types, congenital, the result of weakness in ligamentous connections, syphilitic and due to degeneration of vessels (atherosclerosis). Although the syphilitic type is the largest and numerous, obviously to one form of cardiovascular disease it is by no means the only cause of such aneurysms, still less the latest common one, or need to be thought. Congenital aneurysms on the other hand are much more common than need to be thought. They are due to a defect in the lining of vessels and usually occur in the neighborhood of the bifurcation of vessels. They are frequently multiple. I have seen quite a number in Naval hospitals, still more in hospitals abroad, and even in private. Two of them in Plymouth Hospital were in the post mortem table. Both were in the right anterior cerebral vessel. Sometimes there is considerable asymmetry in the vessels on the two sides of the neck at 50 cm. Should the aneurysm be on the larger side (back in the posterior vessels). Should it be on the smaller side (forward), there may be only a feeling sometimes, such as has been described in the three instances. Progress may be kept in guard for a while as a leading aneurysm may give a warning or a warning tell whether it may not look again, and whether there may not be multiple aneurysms may of which may have.

4th Anniversary Sale of 2009

By Robert E. Campbell, M. S. & L. 1970, p. 9

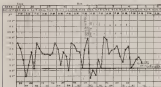
I certainly had the opportunity of seeing this patient for the duration of my stay in Harlow and hence am happy for the visit to rely on rather easily later. The comparative rarity of the disease and some problems in the manufacturing of reagents are mentioned but not in detail.

The patient was a sibling of the only child, living in a small, well-ventilated room, in a residence of the previous owner. In this room, there were several other objects, like a wooden screen, but there was evidence of the presence of water in the building.

The man went to work at about 9 September 10 and was still at work when he felt space. He said he would remember very little further, but apparently he took the elevator and went to bed. He felt worse on the following day; he complained of severe abdominal pain and had a temperature of 102°F. He was admitted to hospital, where I then saw him.

He was lying on his back with his hands drawn up, complaining nervously of the abdominal pain and of the vomiting that had started on his admission, to be kept in bed a severe headache, a fever, daily vomitus and a desire, to some extent, to regulate, very delicate, his not found like was present usually on the right side and there was a swelling in the right upper quadrant of the abdomen, but owing to the double movement, double could not be truly said, was the most likely

There was no lack of staff or any other facilities. The hospital doctor, Dr. Appiah, who has had much experience of typhoid, is abnormally diligent at his work and a strongly positive Will Hays manner confirmed this opinion.



Feeding was very methodical and the plant and her mental condition most confined until the eleventh day of the illness, when her temperature became normal and he began to wonder why had been happening during the past fortnight. The wide temperature fluctuations are shown in the chart and it will be seen that the patient was remarkably steady and only showed signs of flapping on the sixth day. When she was taken and carried away to the hospital, she was unconscious.

The clinical symptoms showed up very quickly as a light fever, malaise and Typhoid's prostration, but after he had had a normal temperature and pain for eight days the temperature slowly increased again. There was no apparent relation to

food, and his appetite returned good, no blood, mucus or otherwise, was detected in his stools.

Repeated x-ray examinations and barium meals showed no abnormality of the stomach, duodenum and/or upper/lower regions, nor were there any other abnormal signs, while the past abdominal history as reported "Intolerance" was identical.

The past health was unimpaired and when most severe, no number later, it had not returned and the patient was in very good health and had gained weight.

Summary of chest findings: (1) Abnormal chest and nasal mucosa. (2) Normal temperature fluctuations. (3) Normal abdominal pain of indeterminate origin. (4) Absence of rash. (5) Strongly positive Weil-Felix reaction.

My thanks are due to Dr. Hoffman for his help in investigating possible causes of infection and the loss of helpful records of the case.

CASE OF ACUTE PELICULAR DERMATITIS FOLLOWED BY PROGERIA

By GEORGE GEORGEAN, F. L. HUGHES, M.D.

AND

WALTER LAMBERT, M. A. HUGHES, M.D., F.R.C., L.S.

The following case seems worthy of record as the progress of a case of acute pellicular dermatitis in an uncommon person, especially considered before, and also because of the chronic nature for its resolution.

J. H., aged 33, reported at the out-patient on August 5, 1936 with an abnormal skin on his lower jaw probably corresponding to untreated wisdom teeth. He was treated with aspirin and mouth washes, but next day the pain was more severe and he could not open his mouth more than half an inch. At 3 p.m. aspirin 2 gr. and salicylic 1/2 gr. were given followed later by aspirin 2 gr. in 10 cc. of water immediately. A large abscess was opened and pus evacuated.

7 p.m. The patient expressed dissatisfaction for a short time and then went to sleep. On his waking abnormal had occurred and there was no need for sleep.

8 p.m. The patient was seen by both medical officers. The condition was acute pellicular and quite unusual for severity. He was asleep and perhaps having a rather feverish.

10.15 a.m. The next health attendant reported that the patient's condition had altered during the last twenty minutes and when seen by a medical officer he was sweating profusely, purple grey in colour, breathing very rapidly, and spasmodically coughing up a frothy and viscous expectoration. Temperature 100.4°F, pulse 100, respiration 20. The white count was 10,000 per cell and both lymph and monocytes fell of striking value. Aspirin 2 gr. was given subsequently. Cough was also given subsequently, and the patient snuggled up in bed.

The patient continued to get worse. Dryly coughs came up in intervals, his breathing became more rapid and his pulse faster and weaker. At this time his respirations were 30 to the minute. One teaspoon of ammonia oil was given at 11 a.m. The patient was collapsing, the pulse was barely perceptible at the wrist. Aspirin did not appear to have had much effect. The pupils were moderately constricted and reacted to light, and he was still sweating profusely. The lung condition was unchanged. The medical officer was called in again, the case was at the 2nd stage of the case but the heart appeared slightly dilated to the right. A further 2 1/2 gr. of aspirin was given and 1 ampoule of morphine. As a few minutes the pain improved, sweating grew less, the respirations ceased and the patient appeared to sleep. At 3 a.m. he was awake and conscious and perfectly

retained. The chest was entirely devoid of any physical signs. Temperature 102° F., pulse 92. He could maintain nothing more than the passive chin-up. Except for his mouth condition he continued to make good progress.

DISCUSSION.

The case is remarkable in several ways:—

(a) The sudden onset in an interstictic period after vague antecedents, after having been given 10 cc. of streptocin.

The case was a silent rising, 22 F. 19279 came around. There was no question of toxic shock, septicæmia, subcutaneous or suppurative degeneration, the clinical history there was transparent. There was no history of vague antecedents or viruses.

The identity of pulmonary edema is sometimes explained on the grounds of a deeply indented line along the base of the heart, but as the sternal heave was not felt it did not help in this case.

The possibility of an atypical response to streptocin is possible, though it must be exceptionally rare.

If anything had been related from the mouth one would have expected an atypical pneumonia, or small rather than a large edema.

(b) The massive dose of streptocin given, 10 cc. ρ , ρ was given to patients on lung as well as to the ρ , ρ given under no. 1. Whether about ρ , ρ was given, and the case had no ill effects, except some dryness each day.

It was evident that streptocin in the form administered for pulmonary edema had a second indirectly demonstrated part in (c). The case was already under treatment and there was no suggestion of edema. It was a respiratory depression it was considered attributable. Probably the small dose of the same dose was at least a useful adjunct to the streptocin. The case was very mild and had very small signs which were difficult to make out as evidence was not found. Probably clinically it would have been possible to keep close to streptocin the heart and to maintain edema.

(c) The progress of pulmonary edema in an interstictic period is generally given as follows:—The respiratory signs were being done of streptocin sign, and a small dose may be used. The diagnosis was in which the chest showed of all physical signs was considerable.

TWO CASES OF INTERSTICTIC

BY GEORGE CHAMBERS, B. S. M.D., F.R.C.P.

Case 1.—April 15. Admitted on November 15 1925, complaining of chest pain which came on at 1925. He remained quiet with the chest of symptoms and after three hours there was "Temperature 102° F., pulse 92. He had no other than a small attack three months previously which lasted a few hours. Patient was a tall, thin, and referred his pain to the middle of his chest. The pain was spontaneous in character, coming just as it felt about and down to the top. Between the upper and chest was found there was no tenderness, and the lower was felt. The condition was diagnosed as mild, and the patient was kept under observation. In 1925 the condition was diagnosed but some slight tenderness was found in right-hand lower and on respiratory depression was developed on

Operation.—The chest was opened through a Rutherford-Macdonald incision for appendectomy. On opening the peritoneum its interstictic nature of the interstictic type was found in the lower half of the chest. After appendectomy this was made more definitely defined, and on the same incision incision of the opening portion of the incision a small Rutherford-Macdonald was found,

the lower in this case, but about 1 cm. was deeply congested and several areas of gangrene were found which did not rest in but minor veins. This area of necrosis was limited and a lateral anastomosis was performed. The abdomen was closed without drainage.

Convalescence was uneventful except for some slight intestinal discomfort on the second day which resulted immediately in a gas gangrene with toxin (20,000 units), this was followed on the eighth day by a further severe reaction.

Discharged to duty on December 22, 1935.

Case 2—April 14, 1936.

Patient was admitted at 3 p.m. on May 21, 1935, with a history of passing blood and mucus per rectum in the abdomen, there was a vague history of prodromes on which might have accounted for her condition.

On admission, temperature normal, pulse 140. Abdomen soft, no pain on examination and no mass felt. It was decided to treat the patient on suspended diet, and glucose and water by hypodermic.

May 26 Temperature 102.0° F., pulse 140. Condition unchanged. Diet continued except for some suggestion of loose stools in the day. Abdomen flaccid.

May 30 Temperature 100.4° F., pulse 140. Abdomen distended, and patient noticed more blood and mucus passed per rectum. The stool came out spontaneously with violent gas.

Operation—The abdomen was opened through a right pararectal incision, a large area of inflammation was found which was easily removed. The organs had a well marked secondary about a 1 cm. long, a small section which may have been the starting point. The abdomen was closed with difficulty owing to marked distension of the small intestine.

May 31 Temperature 100° F., pulse 140. General condition improved, abdominal distension still present.

May 31 Temperature 100° F., pulse 140. Improved. Temperature normal, given some local anesthetic and saline passed. Later in the day patient passed some black stools, and from then there was a good recovery.

Discharged from hospital on June 12, 1935.

THREE CASES OF COCHLITRIASIS

Dr. HENRY COCHRAN, F. R. MARYLE, M.B., B.Sc., D.P.H. &c.

There are a few points of interest in the following series of observations recorded at St. N. Hospital, Chatham, during the past year—

(1) A mother aged 32, had when ill, complained of rigors of headache and loss of weight associated with cough, night sweats, and a local history of tuberculosis. There seemed to be parasitic evidence of some filariform larva, but subsequent investigation—clinical, radiological, and bacteriological—failed to demonstrate any such.

On the completion of eight-week abdominal pain, but a slightly reduced appetite had been noticed some months previously without improving the condition.

X-rays showed a shadow in the gall-bladder, but no view of the abdominal organs was satisfactory and it was regarded as doubtful.

When admitted to St. N. Hospital, Chatham, he still complained of night abdominal pain, the night sweats had ceased and his general condition had improved. He had continued smoking (cigar) and a polyphagotrophic honey-suckle of about 14,000.

Thorough examination again failed to reveal any intracapsular lesion. There was some tenderness over the gall bladder, and although there had been no history of jaundice, a very soft, spotty tenderness of the epigastrium and epigastrium was described.

Exposure was by incision a oblique incision, the gall bladder was found to be normal in size, with its walls only slightly thickened, but a heavy dense mass was palpable in Hartmann's pouch. Cholecystectomy was performed in the usual manner, and a small tube led to the opening of the cystic duct. It was not found possible to pass a probe into the duct in procedure but always easy, but could not be passed, failed to reveal any calculi in duct, and another incision after operation was there was evidence of obstruction of the common bile duct.

One incision was interrupted on the second day after operation, by the development of a large hematoma in the middle of the abdominal wall, which had to be evacuated under a short general anesthesia. but otherwise the patient was satisfactory, and he was going well and soon later was discharged when discharged in one hour one month after operation.

(2) A child 12 1/2, aged 10, had been a hospital case during the previous six months suffering from jaundice and history of pain.

A very soft spotty tenderness a poorly contracting gall bladder with thickness of about 1/2. He was advised to have his gall bladder removed, and operated.

At operation the gall bladder was exposed by incision a incision, and was found to be thickened and thickened. It contained two palpable stones and was densely diseased.

After dissection of the duct, the cyst was removed on the small way, and the common bile duct exposed by probe and hand alone. A small tube was left in the cystic system, which closed the cystic duct, and the middle of the duct by a clip of rubber dam.

Stitches and drainage was given, body per rectum after operation and during convalescence large doses of bismuth were indicated in the following manner:

1	Bismuth	gr 75
	with honey	gr 100
	3 times a day	gr 150
	4 days	gr 150

Fig. 1 is from text

As suggested by Mr. Sidney Mangan (1) bismuth with an alkali salt on the gall bladder instead of on the bile duct, so it does not cause acid indigestion.

The patient complained of indigestion after a week, and the bismuth was stopped.

Cholecystectomy was satisfactory and uneventful, and he was discharged in six days and doing fairly three days after operation.

(3) A Royal Marine Police Constable aged 41, was admitted for observation with the diagnosis of (1) chronic disease, and (2) gallstones with a history of one year's indigestion.

He was found to have very soft, soft, and gave a history of repeated attacks of vomiting and indigestion after meals, with, on occasion, very severe pain in the right hypochondrium which made him vomit and forced him to go to bed. There had been no jaundice.

At operation a very exposed gall bladder in the large and dense, but there was a pronounced thickening and a marked appearance indicating the presence of calculi. The cyst was also found to empty itself after a very short time.

In view of the history and the x-ray findings the patient was advised to have all his teeth cut, and, last, to have the gall-bladder removed and removed if necessary.

He recovered and when under general anesthesia all his teeth had been extracted. Indigestion by Hartmann's oblique incision was undertaken the day after.

handage is used as a means of transfer for use and reuse of the handage, but one necessary to avoid contact between, and each time must be used in order to avoid pulling upon the upper edge, and so causing unnecessary injury. The handaged part should be continuously treated by means of this flat of the hand in order to follow the contour of the foot, but no pressure be exerted all finger tips should be allowed under any circumstances, as this is the important point of a pressure upon the depression of the phalanx given it, the pressure point against the underlying shoe.



Plaster for strengthening the sole must be by lifting layers of the handage upon itself and then covering with one or two layers of plaster handage in order to keep it in place.

No plaster put on unless it is necessary, it delays the work of drying and healing. Oil and soap put on to the strength of the cast.

These handages will be quite firm in seven minutes. A patch of cotton web in the water used for applying the handage will cause it to dry more rapidly, but has the disadvantage of rendering the resultant cast rather brittle.

Reviews.

Recent Advances in Physiology. Edited by Sir D. J. W. Powrie, M.D., F.R.S., F.R.C., Consulting Surgeon and Assistant to the Surgeon in a Hospital. New Lectures, Royal College of Surgeons of England. The Medical Press and Lawrence. London 1935. Pp. 342 + etc. with 24 plates. Price 7s. 6d.

This is a volume of exceptionally interesting essays, all of which have previously appeared in the *Medical Press and Lawrence*. They are contributed by twenty-four writers, all concerned in their own spheres of practice with the close relationship of our various medical interests. Sir D. J. W. Powrie.

Beginning with the greatest of all physiologists, William Harvey (1593-1633), the collection ends with perhaps the most influential modern English physiologist, Ernest Henry Starling (1866-1927). Between these two the essays include not only work which has made modern physiology, I like Huxley, Brown, Wright, Lister and Macewen, but others less widely known. For example Sir John Philip (1848-1924) who may be regarded as the earliest English hydrotherapist. The essay is contributed by Frederick J. A. Mason of Oxford University.

This volume is well given a masterly and sympathetic study of his famous predecessor at St. Bartholomew's Hospital, that eminent consulting surgeon and the first English surgical pathologist, Sir James Paget (1814-1899).

Mr. Cecil Wainwright writes very characteristically on the great practical surgeon of the Victorian period, William Ferguson, whose name is perhaps only known to the lay public from reading accounts of the last of Derby and Glam. J.C. or *scotches* 'concomitants', who have resorted to amputation in order to provide 'salutary' for the commercial school of Dr. Keene at Edinburgh. Ferguson was one of the volunteers at the trial and was retained to sit Parker's examination in the following passage: 'This worthy gentleman, Mr. Ferguson, was the only man that ever mentioned anything about the bodies. He asked where they got the girl Mary Pearson because she would seem to have been well known to some of the students. Her body was so well wrapped that Rogers would not allow it to be dissected, but permitted it to open, and called on Samuel Joseph the artist, to make a sketch of it.'

Among the modern masters of medicine the very manifest account of the life and work of the Father of Tropical Medicine, Sir Dr. Phillips Manson-Bell, D.Sc., is of special interest. But indeed, there is not a dull page in the book and those who, perhaps are apt to regard the reading of medical history as a waste of time, will almost certainly be converted by this fascinating, sympathetic

Summary on Chemical Pharmacology. Being the Annual Report of the British Committee on Chemical Pharmacology, appointed by the Royal College of Physicians. Edited by G. W. Bentley M.D., F.R.C.P. 1955. London: H. K. Lewis and Co., Ltd. Pp. 240. Price 15s. 6d. net.

This is the second volume of Reports presented by the British Committee on Chemical Pharmacology. The Committee was appointed by the Royal College of Physicians in March, 1954, with the object of promoting and co-ordinating investigations into the chemical elements, elements, with especial reference to chemotherapy.

The volume consists of eleven articles by clinical and laboratory observers, presented by the committee because they are believed to be of real value. The Editor, in his preface, however, writes so that the views expressed are not necessarily those of the British committee, who have no desire to hamper any advance in the expression of these opinions. This free and open discussion is very healthy, and is essential if any progress is to be made in this very difficult subject.

The classification of chemical articles suggested is simple, and there is good reason to suppose the division of the reactions into two main groups: (1) *Acids or substituted aromatic bases*, and (2) *Alkaline or organic*. (a) *Substituted acids* (b) *Substituted bases*. The chemical type is again divided into two or perhaps three, (a) where the specific name is known, and (1) where there is no known specific name. Each substance is paid to be substituted, which is agreed by all to be essentially a descriptive change in the whole, associated with size and form, and which can be satisfactorily demonstrated in a large proportion of the utility members of the population every of whose bodies we have knowledge of its structure. The general theory has been shared, Professor Barrow and Dr. Gellin introduce a most interesting discussion on the interrelationship of the other types and give support to the view that there is much to be learned in the study of some observations and chemical (b) reactions, or chemical-substituted substances as they prefer to call it. They show the importance of chemical substances in these reactions, and indeed the concentration of chemical reactions of the point where in the solution in the case of the point where it is observed, however, that some substituted acids in general which is the

presence of infection, others can point to the presence of infection, not to its absence! However, without pursuing this question of nomenclature further, we may quote the words of Ferguson in the general volume of these reports: "The word, *diagnosis*, is, in my mind, not a phrase of medicine looking through, but an exact map of it."

Dr. Griffiths, in his article on the etiological relationship of the streptococcus to rheumatic arthritis, supplies the term of a streptococcal infection of the acute and rheumatical varieties, but admits that the local reactions are due to infection arising in the epithelia of the joints and neighbouring tissues, this infection having previously escaped from a primary focus.

We are not particularly impressed by the choices and suggestions proffered by Dr. Ferguson in favour of streptococcal focus or streptococcal infection. He goes so far as to state that the incidence of such a condition ranges in the 50 to 60 per cent. of all cases of this rheumatical arthritis. He does not give us any definition of "type rheumatical arthritis," and it seems to me strange to the experienced clinician that there are all gradations between acute rheumatism and rheumatical arthritis. In two words at least, the evidence for the diagnosis of streptococcal rheumatism includes personal and family histories, oedematous "rheumatism," blood sediment, acute joint movements, and positive blood cultures for *Streptococcus* produced by the special methods of Professor Lowenstein at Ypsala. It may be as well to keep an open mind on this matter, but the results as presented in this article are not convincing.

A report on recent American work upon the rheumatic disease has been written by Dr. Hodge of the Mayo Clinic, Secretary of the American Commission for the United of Rheumatism. This survey covers the field of rheumatism as an identifiable entity, and is distinguished by lucidness and objectiveness. He believes that many of the topics in rheumatical rheumatism, post-dans rheumatism, and other designations which have been used by different observers are the result, not the cause of the disease, since the aggregation or pre-aggregation factors, none are essential. It is further well to be guarded and stated in the report of an excellent etiological factor that we have no means sufficient to ascertain its role as. He does not believe that any cure for rheumatical arthritis will ever come out of a mechanical cause, and thinks that the efforts of his aggressive colleagues may provide the larger discovery of a cure with the confidence and confidence necessary to achieve his success.

The article by Dr. Hodge and Dr. Marshall on the Psychological Aspects of Chronic Rheumatic Joint Disease is interesting and emphasizes the need for better understanding of the mental aspects of disease processes in general and chronic disease in particular, and the importance of looking upon the body as a whole. It does not, however, advance our knowledge of the subject under review very much.

This volume will be of interest to those who wish to have a synopsis of views, clinical and laboratory on chronic rheumatism. The practitioners, who desire a vision of new for his suffering patients, may feel disappointed, and think that we are not really very much nearer the truth than we have been hundred years ago.

Post Graduate Society. Edited by Robert Macgregor F.R.C.S. King. Volume II. Pp. xvi + 1,322 with 1,124 figures. 1936. London: Medical Publishers Limited. Price 70s. net.

We considered that the first volume of Post Graduate Surgery which was published at the end of 1935, was the first book on surgery yet published. Volume II of the same work which is now under review appears to us even more than Volume I.

Andrew Lillie with the local, special volume and bibliography. The authors

treatment of lung cancer is clearly on both sides the diagnosis and treatment of lung cancer is of a very high order. This section was written by Mr. Cyril Watling.

Section II, written by Mr. William Warden, gives a very comprehensive account of the surgery of the neck.

Section III, written by Mr. Welford Lane, deals with the surgery of the breast.

Section IV, written by Dr. Stirling, late of the St. Vincent's Hospital, and Mr. Robert Wilson, assistant at a suburban hospital of the surgery of the thorax, the former writes both with the student, the latter with the surgical expert. The entire surgery has progressed at various points by lungs and fourth and in the whole the surgical treatment of pulmonary tuberculosis, pulmonary emphysema, inter-lobar pneumonia and bronchitis seems to clearly represented by the authors.

Section V, written by Mr. Lyle Stewart, Mr. Sidney Franklin and Mr. Owen Armstrong is devoted to the subject of gynaecology. The whole is very comprehensive and well illustrated.

Section VI, Mr. Alexander Dunn gives in this section a full description of the surgery of the whole of the urinary tract. The first chapter is devoted to a clear and concise description of how to distinguish a patient with genito-urinary symptoms.

Section VII, This section, written by Mr. Lawrence Abel, describes the surgery of the reproductive system.

Section VIII gives an account of the surgery and surgical pathology of the internal gland.

Section IX, *Reproductive Therapy*, written by several authors, is very complete.

Section X, Mr. Hamilton Bailey gives in this section a very thorough description of the most important surgical techniques of the hand.

Section XI, *Orthopaedics*, is written by Mr. Sir J. D. Watson.

The whole volume, which is beautifully illustrated with over 1,000 original drawings, compares with the reputation of the value and we have turned to the appearance of Volume III.

A *Handy PRACTICE* in *Orthopaedics* By Hamilton Bailey, F.R.C.S. and H. J. McNeill Love, M.B. Lond., F.R.C.S. Eng. Third Edition. London: H. K. Lewis and Co., Ltd. Paper 4s. 6d. (Illustrations 500 Woodcuts) Pages 286 net.

The third edition of this handbook, appearing just over a year since the last edition, emphasizes the worth of the book and its popularity.

The volume is to be congratulated for the masterly manner in which twenty is combined with careful details, thus making the book of great value to the overworked student and the busy practitioner who desires to keep abreast with up to date surgical practice.

The diagrams are accurate and excellent, and highly and clearly the text.

We are thoroughly convinced that both in all medical officers.

ORTHOPAEDIC SURGERY, 1938. First Edition. Compiled by Lieutenant Colonel H. J. Watson, M.C., R.A.M.C. Published by H.K. Lewis and Co., Ltd. Price 5s. 6d.

It must have been written from every angle on medical science that there is little more for further advancement on the subject. The book, after years, however, is a welcome addition to medical literature in that it describes several diseases from the point of view of the Army in particular and the other Services in general. Lieutenant Colonel Watson is to be congratulated on the completion of these manuscripts, and the similar way they have been arranged.

In comparison with the *Book North Staff Manual* this volume should prove a valuable aid to the practicing sick berth ranger. Although the last two chapters, dealing with nursing and physiology, may appear to be somewhat advanced practically and berth attendants of average education should readily absorb the greater part of them during their first year in the wing.

As a first book it is probably the best of its kind. Combined with the *Manual*, it should prove most useful to arranging lectures dealing with anatomy and physiology and does not in all respects.

We can strongly recommend this book for general use among the *Book North Staff* as an excellent supplement to that not a substitute for, the *Book North Staff Manual*. These two books may be considered as being complementary to each other.

Like all publications from John Wright and Sons, the printing and illustration should not be improved.

HYGIE IN PNEUMONIC PLEURISIA. By Dr. Richard Rogers D.D., M.D. Also late Major R.A.M.C. (T). Medical Superintendent, the London Mental Hospital. Director in Mental Hygiene to the General Nursing Council. Late M.C. of the Mental Division, the Lord Derby War Hospital, also M.C. the Addenbrooke's Special Neurological Hospital, Colney, the Royal Gwent Hospital, Newport, and the Devonport Division, the Royal Victoria Hospital, Balley. Third Edition. London: H. K. Lewis and Co. Ltd. Price 6s. 6d.

This book is very handy and contains good practical and ready read. There are 220 pages and 13 illustrations.

The contents are very complete and are put in a manner that should easily be understood by the practical nurse or attendant. The chapters on Dietetics, Prognosis and Recovery are particularly good.

This book should be of the greatest value to nurses and attendants, both for educational purposes and also for reference.

The only slight thing against the book is the price, 6s. 6d., which is a somewhat high price for the portion of the ordinary mental nurse or attendant.

RESEARCH ON THE LAW OF THE MIND IN HUMANITY. An Account of Some Peculiarities, Peculiarities, Peculiarities, Peculiarities. By W. E. Hall, M.A., M.D. (Lond. Univ.) Neurologist, Glasgow Homoeopathic Hospital, 1886. London: William Heinemann Ltd. Pp. 26. Price 6s. 6d.

This small monograph records the results earned out on behalf of the Glasgow Homoeopathic Society, British Homoeopathic Association of an investigation designed to prove that homoeopathic remedies brought "phenomena" by Hahnemann, do in actual fact contain minute quantities of the substances from which they are prepared. And by spontaneous, accidental and other means, the author was able to satisfy himself that such is the case. The laboratory work in connection with the research was carried out by N. J. Hall, B.Sc. F.I.C. F.W. Hall, F.I.C., and partly by the author. The work may prove of interest to those interested in homoeopathy.

[illegible]

the 1900-1901 season the total catch was 1400 tons, the total catch in 1901-1902 was 1500 tons, and the total catch in 1902-1903 was 1600 tons. The total catch in 1903-1904 was 1700 tons.

The total catch in 1904-1905 was 1800 tons, the total catch in 1905-1906 was 1900 tons, and the total catch in 1906-1907 was 2000 tons. The total catch in 1907-1908 was 2100 tons, the total catch in 1908-1909 was 2200 tons, and the total catch in 1909-1910 was 2300 tons.

The total catch in 1910-1911 was 2400 tons, the total catch in 1911-1912 was 2500 tons, and the total catch in 1912-1913 was 2600 tons. The total catch in 1913-1914 was 2700 tons, the total catch in 1914-1915 was 2800 tons, and the total catch in 1915-1916 was 2900 tons.

The total catch in 1916-1917 was 3000 tons, the total catch in 1917-1918 was 3100 tons, and the total catch in 1918-1919 was 3200 tons. The total catch in 1919-1920 was 3300 tons, the total catch in 1920-1921 was 3400 tons, and the total catch in 1921-1922 was 3500 tons.

The total catch in 1922-1923 was 3600 tons, the total catch in 1923-1924 was 3700 tons, and the total catch in 1924-1925 was 3800 tons. The total catch in 1925-1926 was 3900 tons, the total catch in 1926-1927 was 4000 tons, and the total catch in 1927-1928 was 4100 tons.

The total catch in 1928-1929 was 4200 tons, the total catch in 1929-1930 was 4300 tons, and the total catch in 1930-1931 was 4400 tons. The total catch in 1931-1932 was 4500 tons, the total catch in 1932-1933 was 4600 tons, and the total catch in 1933-1934 was 4700 tons.

1934 - 1935 North Borneo - Administration.

(N. 10-11-1934 - 12-1-1935.)

The total catch in 1934-1935 was 4800 tons, the total catch in 1935-1936 was 4900 tons, and the total catch in 1936-1937 was 5000 tons. The total catch in 1937-1938 was 5100 tons, the total catch in 1938-1939 was 5200 tons, and the total catch in 1939-1940 was 5300 tons.

The total catch in 1940-1941 was 5400 tons, the total catch in 1941-1942 was 5500 tons, and the total catch in 1942-1943 was 5600 tons. The total catch in 1943-1944 was 5700 tons, the total catch in 1944-1945 was 5800 tons, and the total catch in 1945-1946 was 5900 tons.

The total catch in 1946-1947 was 6000 tons, the total catch in 1947-1948 was 6100 tons, and the total catch in 1948-1949 was 6200 tons. The total catch in 1949-1950 was 6300 tons, the total catch in 1950-1951 was 6400 tons, and the total catch in 1951-1952 was 6500 tons.

1952 - 1953 North Borneo - Administration.

(N. 10-11-1952 - 12-1-1953.)

The total catch in 1952-1953 was 6600 tons, the total catch in 1953-1954 was 6700 tons, and the total catch in 1954-1955 was 6800 tons. The total catch in 1955-1956 was 6900 tons, the total catch in 1956-1957 was 7000 tons, and the total catch in 1957-1958 was 7100 tons.

The total catch in 1958-1959 was 7200 tons, the total catch in 1959-1960 was 7300 tons, and the total catch in 1960-1961 was 7400 tons. The total catch in 1961-1962 was 7500 tons, the total catch in 1962-1963 was 7600 tons, and the total catch in 1963-1964 was 7700 tons.

The total catch in 1964-1965 was 7800 tons, the total catch in 1965-1966 was 7900 tons, and the total catch in 1966-1967 was 8000 tons. The total catch in 1967-1968 was 8100 tons, the total catch in 1968-1969 was 8200 tons, and the total catch in 1969-1970 was 8300 tons.

The total catch in 1970-1971 was 8400 tons, the total catch in 1971-1972 was 8500 tons, and the total catch in 1972-1973 was 8600 tons. The total catch in 1973-1974 was 8700 tons, the total catch in 1974-1975 was 8800 tons, and the total catch in 1975-1976 was 8900 tons.

The total catch in 1976-1977 was 9000 tons, the total catch in 1977-1978 was 9100 tons, and the total catch in 1978-1979 was 9200 tons. The total catch in 1979-1980 was 9300 tons, the total catch in 1980-1981 was 9400 tons, and the total catch in 1981-1982 was 9500 tons.

The total catch in 1982-1983 was 9600 tons, the total catch in 1983-1984 was 9700 tons, and the total catch in 1984-1985 was 9800 tons. The total catch in 1985-1986 was 9900 tons, the total catch in 1986-1987 was 10000 tons, and the total catch in 1987-1988 was 10100 tons.

The total catch in 1988-1989 was 10200 tons, the total catch in 1989-1990 was 10300 tons, and the total catch in 1990-1991 was 10400 tons. The total catch in 1991-1992 was 10500 tons, the total catch in 1992-1993 was 10600 tons, and the total catch in 1993-1994 was 10700 tons.

The total catch in 1994-1995 was 10800 tons, the total catch in 1995-1996 was 10900 tons, and the total catch in 1996-1997 was 11000 tons. The total catch in 1997-1998 was 11100 tons, the total catch in 1998-1999 was 11200 tons, and the total catch in 1999-2000 was 11300 tons.

The total catch in 2000-2001 was 11400 tons, the total catch in 2001-2002 was 11500 tons, and the total catch in 2002-2003 was 11600 tons. The total catch in 2003-2004 was 11700 tons, the total catch in 2004-2005 was 11800 tons, and the total catch in 2005-2006 was 11900 tons.

The total catch in 2006-2007 was 12000 tons, the total catch in 2007-2008 was 12100 tons, and the total catch in 2008-2009 was 12200 tons. The total catch in 2009-2010 was 12300 tons, the total catch in 2010-2011 was 12400 tons, and the total catch in 2011-2012 was 12500 tons.

The total catch in 2012-2013 was 12600 tons, the total catch in 2013-2014 was 12700 tons, and the total catch in 2014-2015 was 12800 tons. The total catch in 2015-2016 was 12900 tons, the total catch in 2016-2017 was 13000 tons, and the total catch in 2017-2018 was 13100 tons.

The total catch in 2018-2019 was 13200 tons, the total catch in 2019-2020 was 13300 tons, and the total catch in 2020-2021 was 13400 tons. The total catch in 2021-2022 was 13500 tons, the total catch in 2022-2023 was 13600 tons, and the total catch in 2023-2024 was 13700 tons.

The total catch in 2024-2025 was 13800 tons, the total catch in 2025-2026 was 13900 tons, and the total catch in 2026-2027 was 14000 tons. The total catch in 2027-2028 was 14100 tons, the total catch in 2028-2029 was 14200 tons, and the total catch in 2029-2030 was 14300 tons.

DEGREES AND DIPLOMAS

Commander Comstock W. S. Hight, M. D., was awarded an M. A. degree by the University of Wisconsin at Madison, Wis., for his college work, and diploma.

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TRANSFERS TO PERMANENT LIST

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

RETIREMENTS

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

PROMOTIONS

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

APPOINTMENTS

to be

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

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Major Lieutenant H. L. Moore, F. S. C. L. S. L. S.

NOTICE.

ROYAL MEDICAL BENEVOLENCE FUND.

Continued from 1933

SINCE the Foundation in 1906 the Fund has benefited nearly 1,000,000 medical practitioners in financial difficulties due to sickness or injury. To their relief and help we still require adequate provision, to their families' needs towards education.

The cost of this Secretary Appeal are —

(1) For our subscription to raise the annual income by subscription and donations to £20,000.

An income of £20,000 at the present income of £14,123 would enable other costs to medical practitioners to be increased from £50 to £20 p.a. and to dependents from £20 to £25 p.a.

(2) For special schemes to create a Fund from which grants can be voted at the discretion of the Committee to: (a) Very aged and distressed cases; (b) towards caring the widows and orphan sons and daughters of medical practitioners to enable them to be self-supporting.

Annual subscriptions to doctors are very urgently needed, and cheques should be made payable to the Treasury Treasurer and sent to the Royal Medical Benevolent Fund, 14, Christie Street, Cavendish Square, London, W.1.

ROYAL SOCIETY OF MEDICINE

WISCONS. Officers are reminded that they are eligible to become members of the United Kingdom Section of the Royal Society of Medicine, 1, Wimpole Street, London, W.1.

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112, GUY'S STREET, LONDON, W.C.2. (LONDON)

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